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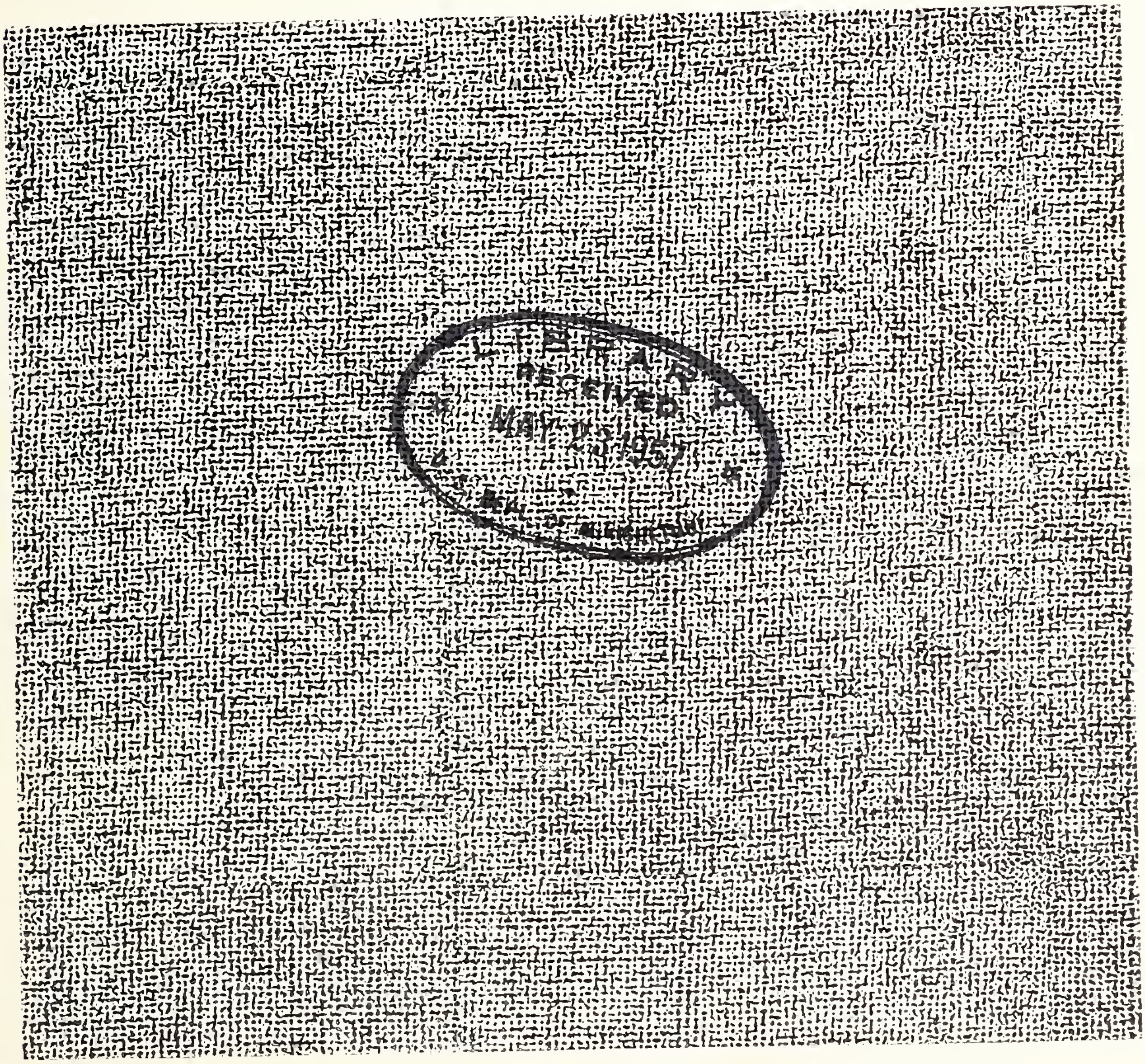
CLOTHING FABRICS

facts for consumer education



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Home Economics Research Report No. 1

UNITED STATES DEPARTMENT OF AGRICULTURE

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Institute of Home Economics

Agricultural Research Service

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CLOTHING FABRICS . . .

facts for consumer education

Quality in a fabric depends on many things. The kind and grade of fiber used, the processes by which the fibers were made into yarns, the construction of the material, the fastness of the dye, and the types of finishes applied all affect the quality of a fabric and the satisfaction it will give in use. Though many fabric properties can be determined accurately only by laboratory analyses, some general knowledge of fibers and fabrics can serve as a guide in selecting clothing materials. Facts on present-day fibers and fabric construction and finishes are brought together here to provide a background to help the average purchaser in judging a fabric for its general wearing quality and its suitability for specific purposes.

Many different fibers are used in fabrics for clothing, and each one has particular qualities that make it desirable for certain purposes. A fabric may be made entirely of one fiber, or two or more fibers may be combined to give a desired quality, as wrinkle resistance, to produce an unusual texture or to make a fabric in a popular price range.

The natural fibers, which come from plants or animals, and man made fibers, produced by the action of chemicals on natural products or from chemicals alone, are all used extensively in present-day clothing fabrics.

Fabrics from natural fibers

Cotton

Cotton, the soft hairy fiber that grows on the seeds of the cotton plant, is the most widely used of all textile fibers.

The quality of cotton depends on the length and fineness of the fiber, or "staple." Long-staple cottons are generally the finest. "Pima," a name sometimes found on fabric labels, is an outstanding variety of long-staple cotton.

Before cotton is spun into yarn, the fibers are cleaned and straightened by carding. In addition to being carded, long-staple cottons are combed to make the fibers lie parallel, and to produce smoother yarn. These yarns are used to make high-quality fabrics, and are referred to as combed cottons.

Many high-quality cottons are mercerized. The mercerization treatment, applied either to the yarns or to the fabric, adds luster and makes materials more absorbent and therefore more comfortable to wear than unmercerized cottons. As the mercerized yarns (fig. 1, *A*) are rounder and smoother than unmercerized yarns (fig. 1, *B*), the finished fabrics do not pick up soil so readily and are easier to iron.

Clothing fabrics made of cotton cover a wide range of weights—sturdy, heavy-duty denims and chambrays for men's work clothes; firm, medium-weight materials such as percale, seersucker, and gingham for housedresses and school and play clothes; and delicate sheer fabrics like batiste and voile.

In light weights and open weaves, cotton is one of the coolest fabrics, ideal for summer wear. With a close weave, pile construction, or napped finish, cotton fabrics have considerable warmth. Corduroys, chenilles, and flannels are examples. A recent development is the so-called winter

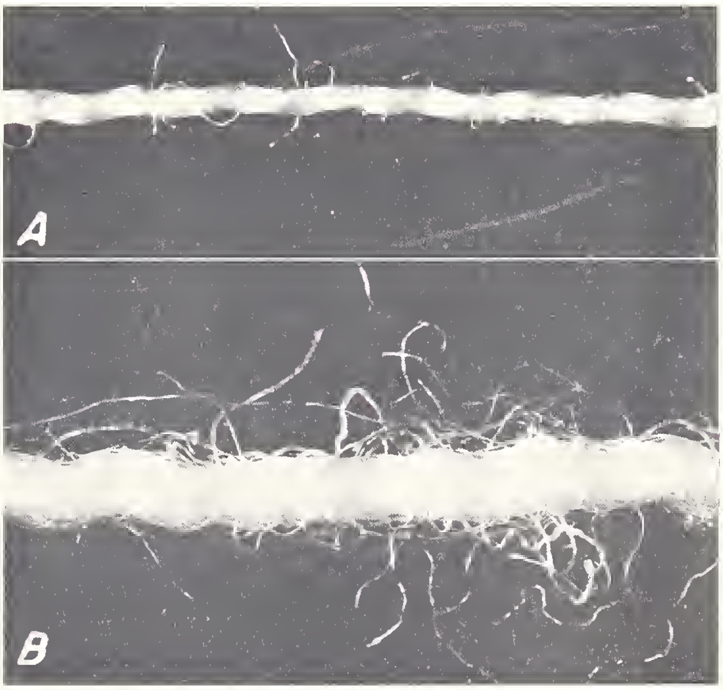

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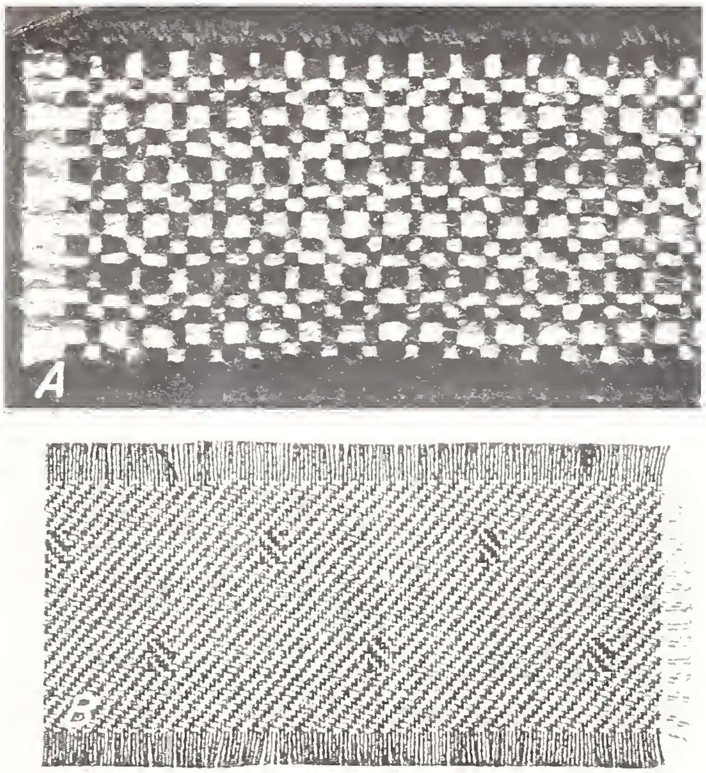
FIGURE 1.—Cotton yarn: *A*, Mercerized; *B*, unmercerized (both magnified).



78357-B, 78358-B

FIGURE 2.—Cotton tweeds.

cottons, woven to resemble wool in coloring and effect (fig. 2). Though not so warm as wool, these fabrics are often used for winter wear in mild climates.

Facts about cotton fabrics

Cotton fabrics generally are washable, can stand frequent hard laundering, and can be ironed with a hot iron. White cottons can be sterilized and bleached safely, unless they have been treated with a special finish that yellows with bleaching. Such materials are usually so labeled.

Cottons are available in a wide range of colors that are usually fast to light, washing, and perspiration.

Because cotton absorbs moisture readily, it feels relatively cool next to the skin in hot, humid weather. However, cottons are subject to mildew unless specially treated.

The fiber has little elasticity, or resilience; therefore cotton fabrics are likely to crush and wrinkle.

Various special finishes can be applied to cottons to increase their wearability—among them, wrinkle-resistant, water-repellant, shrinkage-resistant, flame-resistant, and glazed finishes. These finishes are described under "Special Finishes," page 20.

Cotton is a relatively inexpensive fiber. However, the cost of cotton fabrics may be increased considerably by the use of very fine or novelty yarns, variations in weave, unusual patterns, or special finishes.

Linen

Linen is made from the fibrous material in the stem of the flax plant. The fibers are smooth and strong and vary considerably in size. Yarns made from them range from very fine to coarse, producing fabrics in a variety of weights—sheer handkerchief linens, often used for blouses and dresses; sheer dress linens (fig. 3, *A*); the usual dress linens of medium weight (fig. 3, *B*); and heavier linens used for summer suits for men and for women's summer coats.

Most linens are made in a plain weave with a combination of thick and thin yarns, which gives them the texture commonly associated with linen fabrics. Novelty linens such as herringbones, tweeds, and shantungs are also available.

Labeling of linen

According to the Trade Practice Rules issued by the Federal Trade Commission, no fabric may be labeled "linen," "pure linen," or "pure flax," or carry a name implying that it is linen, unless it is made entirely of linen. If a fabric contains both linen and other fibers, the percentage of each fiber must be stated or the content disclosed in the order of predominance by weight.

Fibers other than linen, treated or woven to make materials that resemble linen in appearance,

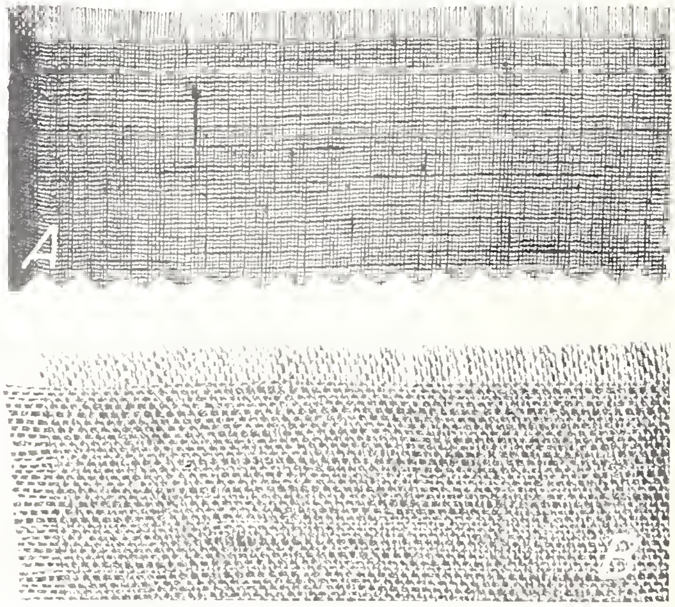


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FIGURE 3.—Linen: *A*, Sheer; *B*, dress weight.

are sometimes labeled "rayon linen," "silk linen," or "nylon linen." A better description would be "linen-weave" or "linen-type" rayon, silk, or nylon. A fabric name containing the syllable "lin," "lynn," or the like may be considered mislabeling. It implies that the fabric is at least part linen, whereas in reality it may be entirely of a different fiber.

Facts about linen fabrics

Good-quality linens are durable because the fiber is very strong. Linen fabrics are pliable so that they drape well. Usually, they have a soft luster.

Linen is naturally absorbent, comfortable for wear in warm dry climates. It wrinkles easily, but wrinkle-resistant finishes have greatly increased its wearability. However, a wrinkle-resistant or other special finish may lessen the absorbency of a linen fabric.

Most linens are washable and can be ironed with a hot iron. Wrinkle-resistant linens sometimes shrink when laundered, but the garment can usually be restored to its original size if ironed while damp.

Good-quality linens are available in colors fast to light, washing, and perspiration; many are labeled "vat-dyed" (see p. 20). Some of the dark colors, however, tend to crock or rub off.

Linens are usually high priced. Most of the flax from which linen fabrics for clothing are made is imported, and production of the cloth is expensive.

Wool

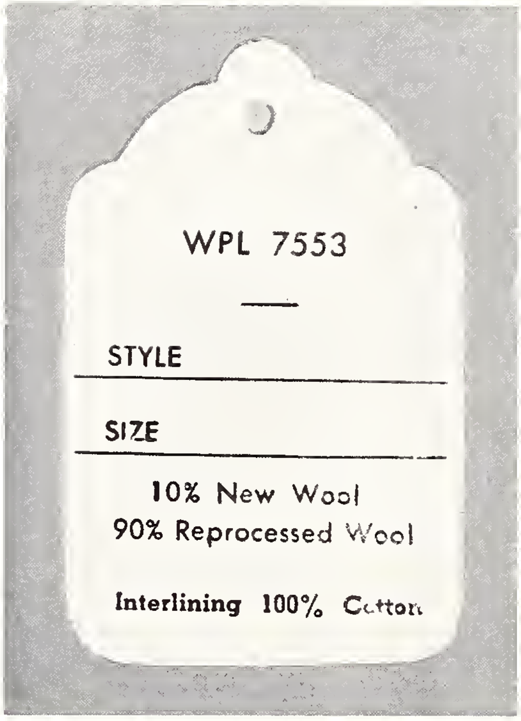
Though wool is commonly understood to be the fiber from the fleece of the sheep or lamb, other animal fibers, often called specialty fibers, are also classified as wool. They include camel's hair, vicuna, alpaca, llama, cashmere, and mohair. Most of the wool used in clothing is sheep's wool.

Wool fabrics have a wide variety of clothing uses. Among the very lightweight wools are challis and albatross—sheer, delicate, and washable. At the other extreme are the thick, heavy, sturdy materials used in winter overcoats. In between are a wide assortment of fabrics—crepes, gabardines, serges, coverts, flannels, tweeds—for suits, coats, dresses, and blouses.

One of the newer developments in the wool fabric field is the blending of wool with other natural fibers. Wool and silk are combined in soft, resilient tweeds. Linen is blended with wool for special lustrous effects. Cotton, long used with wool to make a washable flannel, is now blended with wool to produce fabrics of unusual texture.

Wool fabrics must be labeled

Because the world supply of virgin, or new, wool is not sufficient to meet all the requirements for clothing and other fabrics commonly made of wool, the use of only all-virgin wool would make these materials prohibitive in cost. For this reason, and to extend the use of all available wool, fibers reclaimed from various sources are often used in clothing fabrics, either alone or in combination with virgin wool or other fibers.



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STYLE

SIZE

10% New Wool
90% Reprocessed Wool

Interlining 100% Cotton

78361-B

Figure 4.—Wools must be labeled.

To protect producers, manufacturers, distributors, and consumers from the unrevealed presence of substitutes and mixtures in manufactured wool products, the Wool Products Labeling Act was enacted by Congress. It provides that wool products, except upholsteries and floor coverings, must be labeled as to the amount of wool and other fibers present, the kind of wool—that is, whether it is reprocessed or reused—and the manufacturer's name or registered number (fig. 4).

"Wool" is defined in the Act as "the fiber from the fleece of the sheep or lamb or hair of the Angora or Cashmere goat (and may include the so-called specialty fibers from the hair of the camel, alpaca, llama, and vicuna) which has never been reclaimed from any woven or felted wool products."

"Reprocessed wool" is the resulting fiber reclaimed from woven or felted wool products which have never been worn or used in any way by the ultimate consumer.

"Reused wool" is fiber which has been reclaimed from any type of wool product which has been worn or used in any way by the ultimate consumer.

The term "virgin" or "new" may be applied only to wool fibers taken directly from the fleece of the sheep. Fibers in this category must not have been reclaimed in any manner.

Reclaimed wool fibers, either reprocessed or reused, are shorter than the new wool fibers of which the original product was made. A fabric made from good-quality reclaimed fibers can be more desirable than one of a poor-quality virgin wool. Good-quality virgin wools, however, are usually stronger and more resilient.

The Act provides, too, that when a fabric is made of one of the specialty fibers which are classified as wool, or a blend of the fibers with wool, the name of the fiber may be used on the label, provided the percentage of each fiber is given. If the fibers fall within the classification of reprocessed or reused wool, such information must also be stated on the label.

Worsteds and woolens

Wool fabrics are classified as worsteds or woolens, depending on the quality of the fibers and the processes used in making them into yarns.

Worsteds.—Long fibers are used in making worsted yarns. The fibers are put through a combing process which removes the short ones and makes the remaining long fibers lie parallel (fig. 5, *A*). Worsted yarns are smooth, hard, even, and compact.

Good-quality worsted fabrics are usually lightweight. They have a distinct, clear-finished weave that is not blurred by short fiber ends (fig. 5, *B*). Worsted fabrics tailor well and have good draping qualities. They resist wrinkling, will take a sharp crease. Worsteds usually wear well, though such fabrics as serges and gabardines tend to become shiny.

Woolens.—In making woolens, shorter fibers than those in worsteds are used (fig. 6, *A*). The fibers are not combed to lie parallel and so go in all directions in the yarn. The yarns are loosely twisted, soft, and not so even as worsted yarns.

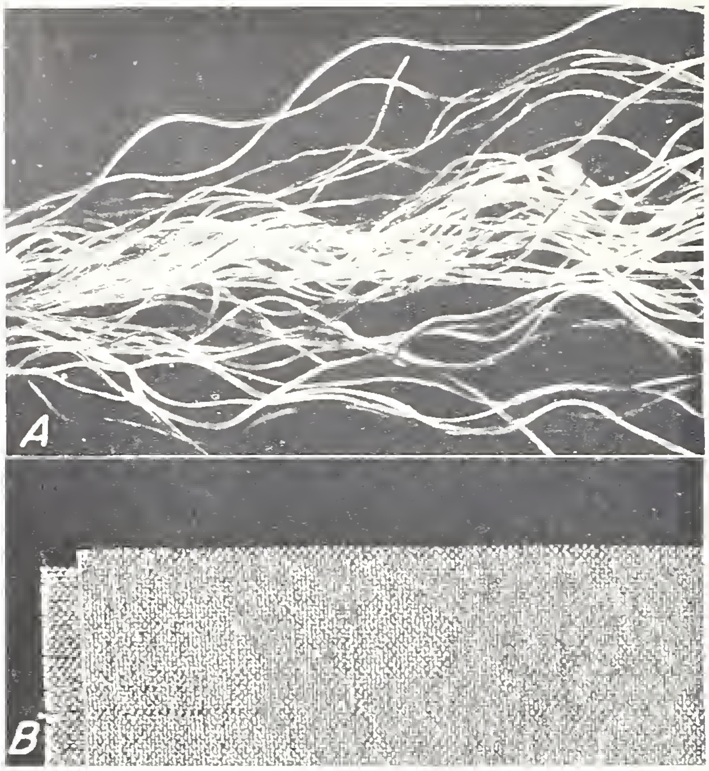

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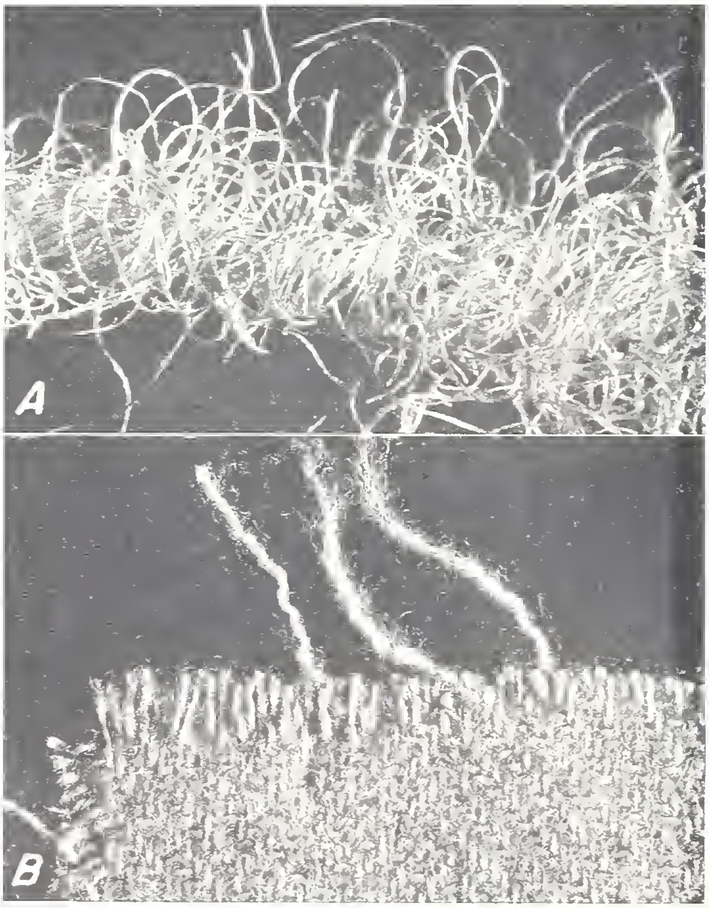
FIGURE 5.—Worsted: *A*, Yarn (magnified); *B*, fabric.



78429-B, 78364-B

FIGURE 6.—Woolens: *A*, Yarns (magnified); *B*, fabric.

The weave of woolen fabrics is not so distinct as that of most worsteds. Some woolen fabrics are napped; others have a soft, slightly matted appearance (fig. 6, *B*). Good-quality woolens are generally soft, but such fabrics as tweeds and homespuns, even though soft, sometimes feel scratchy against the skin. Woolen fabrics do not hold so sharp a crease as worsteds, but since they are softer they do not hold hard wrinkles and do not get shiny.

Facts about wool fabrics

Fabrics of good-quality sheep's wool, whether they are worsteds or woolens, have a soft, springy feel because the fiber is soft, firm, and elastic. These qualities help wools to resist wrinkling and recover quickly from wrinkles.

Wool is good for cold weather wear because the structure of the fiber helps in making fabrics that retain body heat. The fabrics also give protection against sudden changes in skin temperatures. Wool fabrics absorb moisture without feeling cold or clammy or sticking to the skin. Perspiration, however, is sometimes difficult to remove completely from wool garments without wet cleaning or washing.

Wool fabrics give with the body's movements; they are more comfortable to wear than less resilient materials. They can be shrunk into shape with steam pressing and so tailor well. Pressing at too high a temperature, however, damages wool fibers, making the fabric feel harsh; consequently a moderate iron and a press cloth or a steam iron should be used.

Wools can be dyed so that they will be reasonably fast to light, cleaning, and perspiration.

Because the wool fiber is flexible and tough, durable fabrics can be made of it.

Wool fabrics are flame-resistant. However, they are subject to moth damage unless they are specially treated.

Some wool materials—homespuns and jerseys, for example—tend to pill; that is, small balls of fiber form on the surface of the fabric. However, the pills usually come off with continued wear and cleaning.

Facts about the specialty fibers

Camel's hair.—Camel's hair comes from the Bactrian camel of Asia. The fine silky fibers of the underdown, called camel's hair wool, make fabrics that are soft, warm, lustrous. The wiry, tough outer hair is used for less expensive fabrics which are harsher and coarser than the luxury type camel's hair.

Cashmere.—Most of the genuine cashmere comes from the Cashmere goat of China and India. It is a costly fiber, available in limited quantities. Fabrics of cashmere are fine, soft, silky, and resilient; hard wear should not be expected of them. Few woven fabrics are made entirely of new cashmere. Most of the fiber is used in blends with other specialty fibers, with wool, or with the manmade fibers.

Mohair.—Mohair is the hair of the Angora goat. The fibers are wiry, lustrous, strong, and easy to dye. Mohair is usually blended with other fibers to add strength, luster, and a crisp quality to a fabric. Some of the suitings containing mohair are so wiry that they are hard to press adequately with home equipment.

Alpaca.—Alpaca is from a kind of llama domesticated in South America. Alpaca is a fine, very lustrous, strong fiber. It is usually blended with other fibers to make suiting fabrics with wrinkle resistance, strength, and luster. It is also used to make fleeces which are warm and durable.

Vicuna.—Vicuna is from a wild llama in the Andes of South America. Vicuna is the softest and finest fiber used in the manufacture of wool-type textiles. Fabrics, usually fleeces, made of this fiber are very soft and lightweight. The best qualities of vicuna come in the natural beige or light cinnamon color. Vicuna is one of the most expensive textile fibers.

Silk

Silk, another of the natural fibers, comes from the cocoon of the silkworm in the form of very long filaments. It is imported from Japan, China, and parts of Europe.

Four kinds of silk fibers are used to make a wide variety of clothing fabrics.

Cultivated silk comes from the domesticated silkworm. The filaments are usually fine and even in size (fig. 7, *A*). The fineness of the yarns is indicated by denier, which is a measure of the weight of filament yarns. Cultivated silk is used mostly for fine dress silks, such as crepes, taffetas, satins, and sheers.

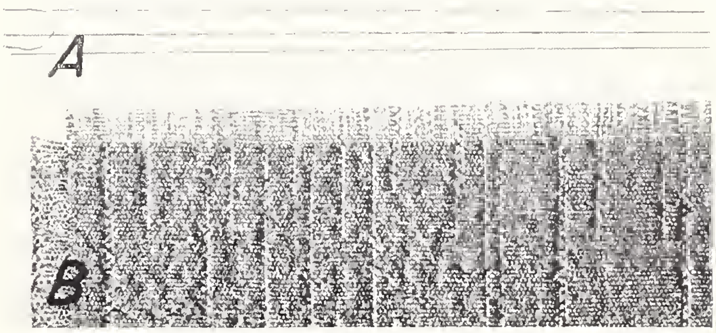


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FIGURE 7.—Silk: *A*, Yarns (magnified); *B*, crash.

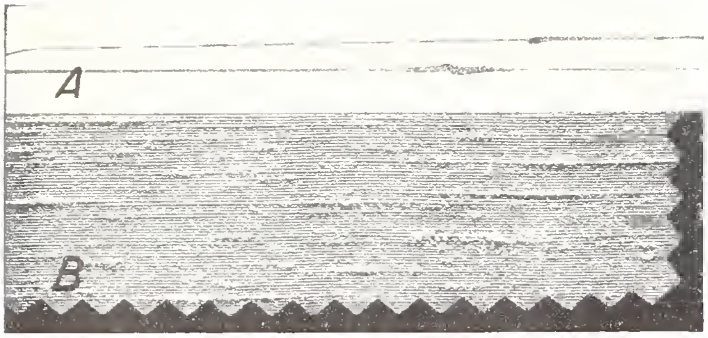

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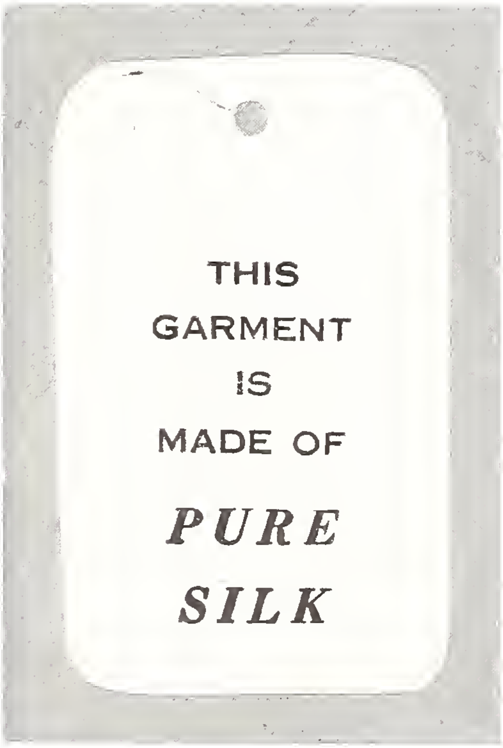
FIGURE 8.—Douppioni silk: *A*, Yarns (magnified); *B*, shantung.

Wild or tussah silk comes from the wild silkworm. The filaments are coarser, more wiry, and not so even as those from the domesticated silkworm; therefore fabrics made from them are not so smooth and soft. Wild silk is used in making some of the heavier linen-weave types of fabrics (fig. 7, *B*).

Douppioni silk is the filament from two or more cocoons that have grown together so that the fibers are joined at intervals. Yarns made from such filaments are characterized by thick, uneven nubs (fig. 8, *A*). They are used to advantage in the production of good-quality shantungs (fig. 8, *B*).

Waste silk is composed of the short filaments that come from damaged cocoons or the outside of cocoons and are not strong or even enough to be used with the better cultivated silk filaments. The fiber is often made into spun silk yarn with irregular slubs, similar to douppioni, which is used in crashes and other rough textured silks, including the less expensive shantungs as well as in some pile fabrics. "Silk noils," a descriptive term sometimes found on labels on silk fabrics, are fibers obtained from waste silk.


THIS
GARMENT
IS
MADE OF
PURE
SILK

78369-B

FIGURE 9.—Label for pure silk fabric.

Labeling of silks

Fabrics may be labeled "pure dye," "pure dye silk," or "silk," or "all silk," if they contain no fiber other than silk, contain no metallic weighting and no loading or adulterating materials or other substances except dyeing and finishing materials necessary to produce color and finish (fig. 9). Such dyeing or finishing materials shall not exceed 10 percent in the aggregate, except black which shall not exceed 15 percent in the aggregate. If a silk fabric contains metallic weighting, the percentage of such weighting shall be disclosed.

Points about silks

Silks have excellent sewing and draping qualities, versatility, and luxurious feel and texture. Relatively expensive, they are usually considered luxury materials.

Heavily weighted silks, particularly taffetas, are likely to crack or split even with very little wear. To avoid this problem, be sure such fabrics are labeled to indicate that they are pure silk.

Many silks have a somewhat slippery surface with few short fiber ends, so they do not soil readily. Silks do not wrinkle easily, because the fibers are naturally resilient. Fabrics such as taffetas that have a stiffening finish may wrinkle with wear, but wrinkles tend to drop out with hanging.

Silks are usually moisture absorbent, so do not feel clammy next to the skin.

Some silk fabrics are hand washable, but most silks retain their original appearance best when dry cleaned by a reliable cleaner. Shantungs, silk organdies, paper taffetas, and similar materials may lose some of their body in cleaning, but this can usually be restored by the cleaner.

Silks are damaged by heat; in pressing, a moderately warm iron and a press cloth should be used.

White silks tend to become yellow with age or from improper laundering.

Many silks have excellent fastness to light and cleaning; some washable silks are guaranteed colorfast. Others, particularly in the strong dark colors, may fade with the first cleaning. So when buying silk garments or fabrics, ask about colorfastness, especially if the garment will be used for general wear and require frequent cleaning.

Fabrics from manmade fibers

The term "manmade fibers" refers to all fibers that are manufactured, whether made from cotton linters, wood pulp, corn protein, or from chemicals. They include the older fibers—rayon and acetate—as well as the newer ones—Dynel, Vicara, nylon, Dacron, Orlon, Acrilan, and others, many of which are still in the experimental stage.

Manmade fibers are produced from solutions made by various chemical processes. The solution is forced through many small holes of a machine known as a spinneret and solidified, forming long threads, or filaments. The filaments may be twisted together to form *filament yarns* (fig. 10, *A*) or cut into short lengths and spun to make staple or *spun yarns* (fig. 11, *A*), which are usually softer and thicker than filament yarns.

Fabrics made from filament yarns are usually smooth and lustrous, such as satin and taffeta (fig. 10, *B*). Fabrics from spun yarns are generally duller, not so smooth, and more bulky (fig. 11, *B*). Spun yarns are used to make fabrics that resemble cotton, linen, or wool in appearance.

"Multifilament," a term sometimes used in connection with manmade fibers, means many very fine filaments twisted together to form a single yarn.

As in silk, denier is a measure of the weight of yarn and to the consumer it indicates the fineness of the yarn. A fine yarn, 15 or 20 denier, is used in making very sheer nylon hosiery; coarser yarns, 50 and 100 denier, in apparel fabrics.

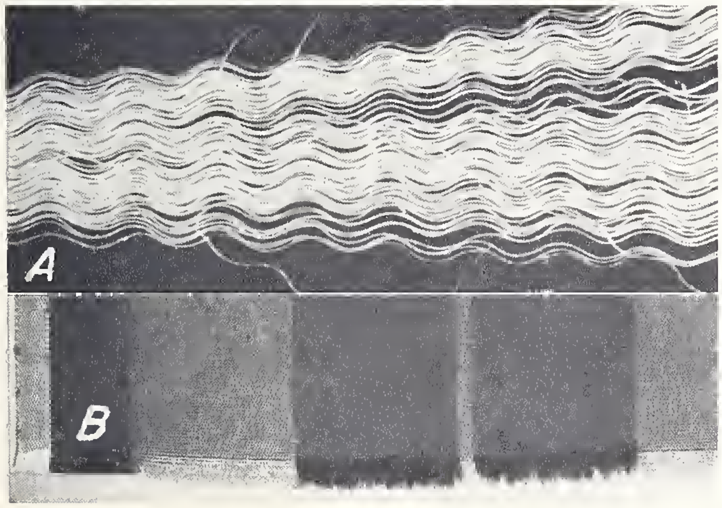


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FIGURE 10.—Filament rayon: *A*, Yarns (magnified); *B*, taffeta.

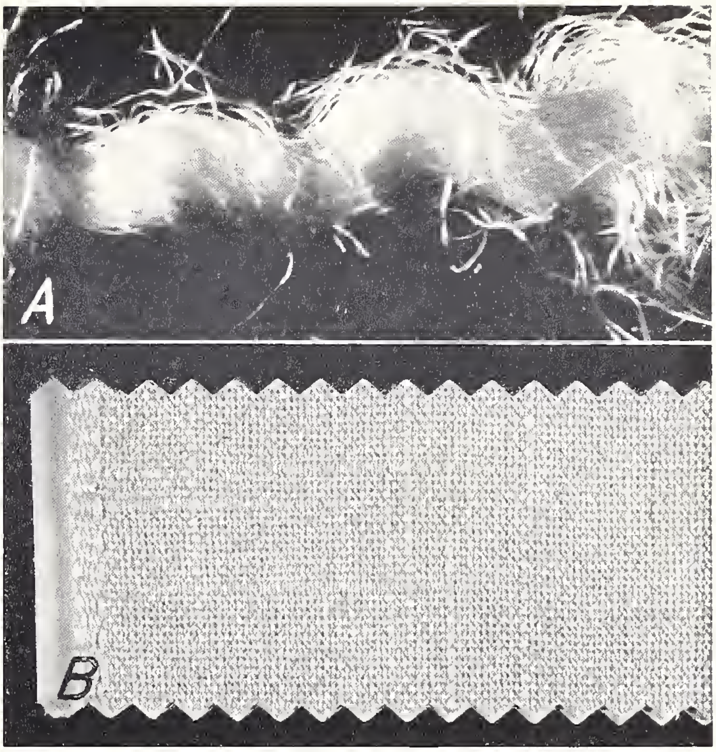

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FIGURE 11.—Spun rayon: *A*, Yarn (magnified); *B*, fabric.

Rayon and acetate

Rayon and acetate are fibers produced from cellulose in the form of cotton linters or wood pulp. There are two types of rayon—one made by the viscose process, the other by the cuprammonium process. Both are similar in their characteristics. Acetate, made by the cellulose acetate process, resembles rayon in appearance but has different physical and chemical properties.

For years the term "rayon" was used to designate all fibers made from cellulose. Under the Federal Trade Commission's Trade Practice Rules of 1951, however, only the fiber produced by the viscose or cuprammonium process should be labeled "rayon;" that made by the cellulose acetate process, "acetate."

The rules also state that if a fabric contains both rayon and acetate, or rayon or acetate with any other fiber, the label should designate the fibers in the order of the predominance by weight or the percentage present.

Most of the fabrics labeled "rayon" are made by the viscose process. "Cuprammonium" is a term seldom found on labels. More commonly used is the name "Bemberg," the product of a firm that produces practically all the rayon made by the cuprammonium process in the United

States. Much of this type of rayon is found in sheer and semisheer fabrics that are used for lingerie, blouses, and summer dresses. It is used, also, for coat linings and is found occasionally in other types of fabrics—surahs, shantungs, and velvets.

Points about rayons

Although similar to acetates in appearance, rayon fabrics have the following qualities:

Absorbent and so can be made into cool fabrics for summer wear; also into warm fabrics similar to wool in appearance.

Usually washable, but preshrunk fabrics in smooth flat weaves are weak when wet and therefore require careful handling. Can be pressed with a fairly hot iron.

Wrinkles badly with wear, so that wrinkle-resistant finishes are of special value on washable rayons and suitings. Shrinkage-resistant and water-repellent finishes also increase the usefulness of rayons.

Colorfast to sun, washing, dry cleaning, and perspiration.

Are not subject to moth damage.

If napped, are highly flammable unless specially treated for flame resistance.

Facts about acetates

Acetate fabrics have the following qualities:

Do not absorb moisture readily and so dry rather quickly.

Many acetate fabrics feel silky and drape well.

Most are washable, but must be pressed with the iron set at low heat to prevent melting or fusing of the fabric, particularly at thick places. Some newer forms of acetate will stand much higher ironing temperatures.

Resists wrinkling more than rayons, although with wear or washing some of the fabrics, especially taffeta, show hard wrinkles that are difficult to press out.

Can be dyed in deep brilliant colors, but are subject to fume or gas fading—color change caused by atmospheric conditions. However, new processes of dyeing have been developed to overcome this problem.

Unless specially treated, acetates tend to accumulate static electricity—the quality that makes a fabric cling to the body or clothing, particularly in cold, dry weather.

Fabrics of rayon or acetate

Many types of fabrics formerly made only of silk are now also made of rayon or acetate. Among them are twills, satins, taffetas, crepes, chiffons, and velvets. Rayon and acetate fabrics are usually much lower in cost than the corresponding materials in silk, so are used extensively for medium- and low-priced clothing.

Some of the very fine fabrics of acetate or rayon are hard to distinguish from silk, but most viscose rayon or acetate fabrics feel heavier when worn than the same type of fabric made of silk.

Though some good-quality rayon crepes resemble silk in wrinkle-resistant properties, rayons generally require a special finish to keep them from wrinkling badly with wear, and even with a wrinkle-resistant finish they sometimes tend to fall into heavy folds while hanging.

Spun rayon and acetate yarns are widely used in clothing fabrics. They may be woven to look like linen or have a texture resembling such wools as flannel, challis, or tweed. The linen-type materials, which are usually rayon, are practical for sport, business, and school clothing. They are inexpensive and can be obtained with wrinkle-resistant and shrinkage-resistant finishes and in colors that are fast to laundering.

The suiting types may resemble wool flannels and worsteds in appearance and thickness and have some warmth. Even with special finishes they may not be permanently wrinkle-resistant, but they tailor reasonably well and are practical, attractive, and comparatively low in price.

Vicara

Vicara, one of the newer manmade fibers, is manufactured from corn protein.

Because it is not a strong fiber, Vicara is usually blended with other fibers to make clothing fabrics. It tends to add the following qualities to a fabric:

Softness, resembling cashmere in this respect.

Elasticity, giving wrinkle resistance to fabrics that are less elastic, such as rayon.

Absorbency, which is particularly important in combinations with fibers that do not absorb moisture, such as acetate or some of the chemical fibers.

Ability to be dyed in a wide range of colors that are fast to light, perspiration, washing, and dry cleaning.

Dimensional stability, since Vicara itself does not shrink.

Nylon, Dacron, Orlon, Acrilan, Dynel

Most of the newcomers in the fiber field—nylon, Dacron, Orlon, Acrilan, and Dynel—are chemical in origin. Materials containing these fibers are usually so labeled. In buying, look for labels that state the amount of the fiber present. Small percentages usually add little to the quality of the material but may increase the cost.

Fabrics made from different chemical fibers have special qualities of their own, but all have the following qualities in common:

Strong but lightweight.

Resistant to moths and mildew.

Fairly fast to color.

Washable and quick to dry, for they do not absorb water.

Sensitive to heat, and therefore the fabrics require careful pressing with a rather cool iron; some may need steam pressing.

Resistant to nonoily stains, but body oils and perspiration are likely to penetrate the fiber and be difficult to remove. Attract soil when dry cleaned or laundered with more soiled materials.

Resist shrinking and stretching, have little "give." Because of this property, most tailored garments of these fabrics need special styling to make them comfortable to wear.

Take heat-set pleats that, if properly put in, will last through wear and washing or dry cleaning (fig. 12).

With friction, accumulate static in cold weather, so that the fabrics cling to other fabrics or to the skin.

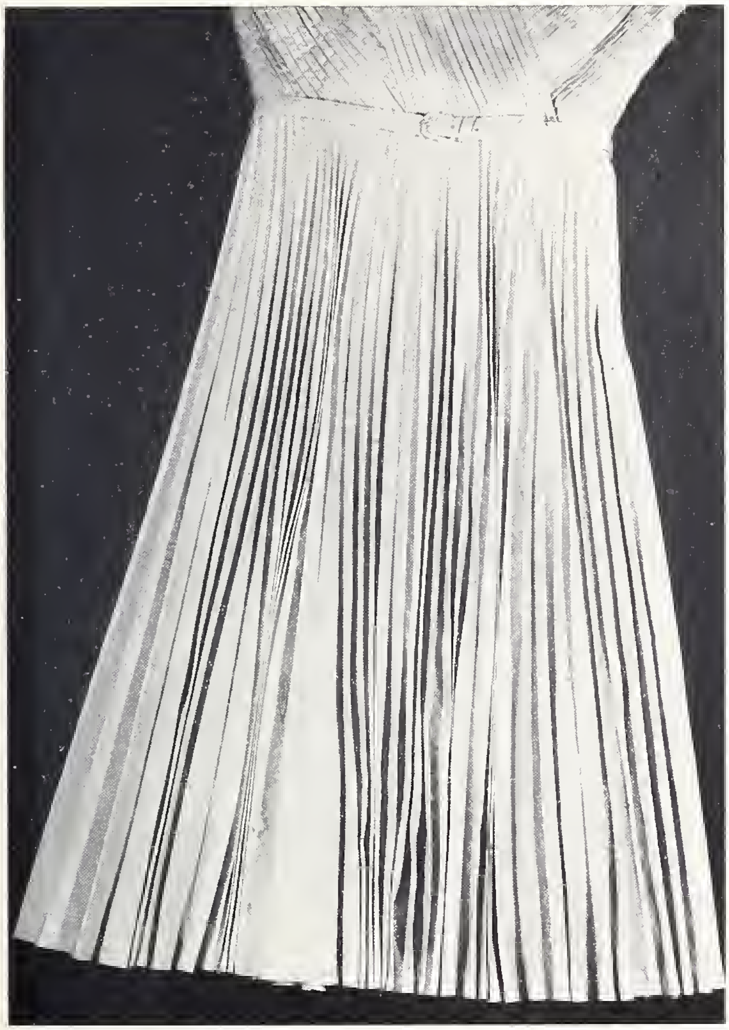

9931-D

Figure 12.—Pleated orlon dress after 30 washings, no pressing.

Nylon

Nylon, the first of the chemical fibers to be used in making fabrics for clothing, is now used extensively both alone and in blends with natural fibers or other manmade fibers. It can be made into extremely fine filaments. Nylon is the strongest of all the fibers used for clothing fabrics.

The term "virgin nylon," which is sometimes found on labels though not widely used, indicates that the nylon yarn has not been used previously in any form.

Some nylon fabrics, such as plisses, seersuckers, and tricots, resist wrinkling and shed wrinkles readily; they require little pressing after washing. Others, such as linen-weave types, require a special finish to prevent wrinkles.

Some plain-weave, firm nylon fabrics—flat crepes, taffetas, and shantungs, for example—are hard to sew smoothly and need special adjustment of the sewing machine.

Stiffened nylon sheers—nets and marquisettes—used for evening wear and in coarse qualities for petticoats, are strong, wear well, and keep their stiffness.

Spun nylons tend to pill. The pills are hard, collect soil, and often do not come off in cleaning.

Nylon adds strength and luster to cotton, but in plain-weave fabrics such as chambray and broadcloth, it increases sewing, wrinkling, and pressing problems.

Nylon and silk in a puckered fabric is a good combination, because the silk adds softness to the material while nylon contributes strength and shrinkage resistance, making the fabric washable. Such a material usually presents few sewing problems.

In combination with wool, nylon also adds strength and shrinkage resistance. However, lightweight suitings of nylon and wool may not have enough body for good tailoring.

Dacron

Fabrics of all-Dacron—suitings, shirtings, shantungs, sheers, and tricots—are particularly resistant to wrinkling. Pleats and sharp creases stay in well if they are properly set by steam pressing. Because extra fullness cannot be shrunk out, the styling of all-Dacron garments needs special attention.

If worn in the rain, garments of all-Dacron fabrics are likely to feel cold to the skin because of the "wicking" action which pulls moisture through the material.

Spun Dacron is blended with wool to make suitings for both men's and women's wear. These fabrics resemble tropical worsteds in appearance. Good qualities tailor well, resist deep wrinkles and recover quickly from wrinkling, stay fairly smooth even when damp, and require little pressing. Many of them wash well.

Spun Dacron is used also in socks and other knitted articles. Some of the knit fabrics are soft; others feel harsh and stiff. Knitted Dacrons tend to form hard pills which do not come off in cleaning.

Dacron in combination with rayon makes suitings that are less expensive than those of all-Dacron or of Dacron-wool blends. They accumulate less static electricity and so are less likely to cling.

A lingerie crepe of Dacron and nylon is less transparent than an all-nylon crepe of the same weight and is more comfortable to wear.

A batiste made of Dacron and cotton is used for men's shirts, women's dresses, blouses, and lingerie. It is lightweight, fairly cool, and quick drying. It can be ironed dry.

Orlon

In addition to the qualities common to all the chemical fibers, Orlon has these special properties:

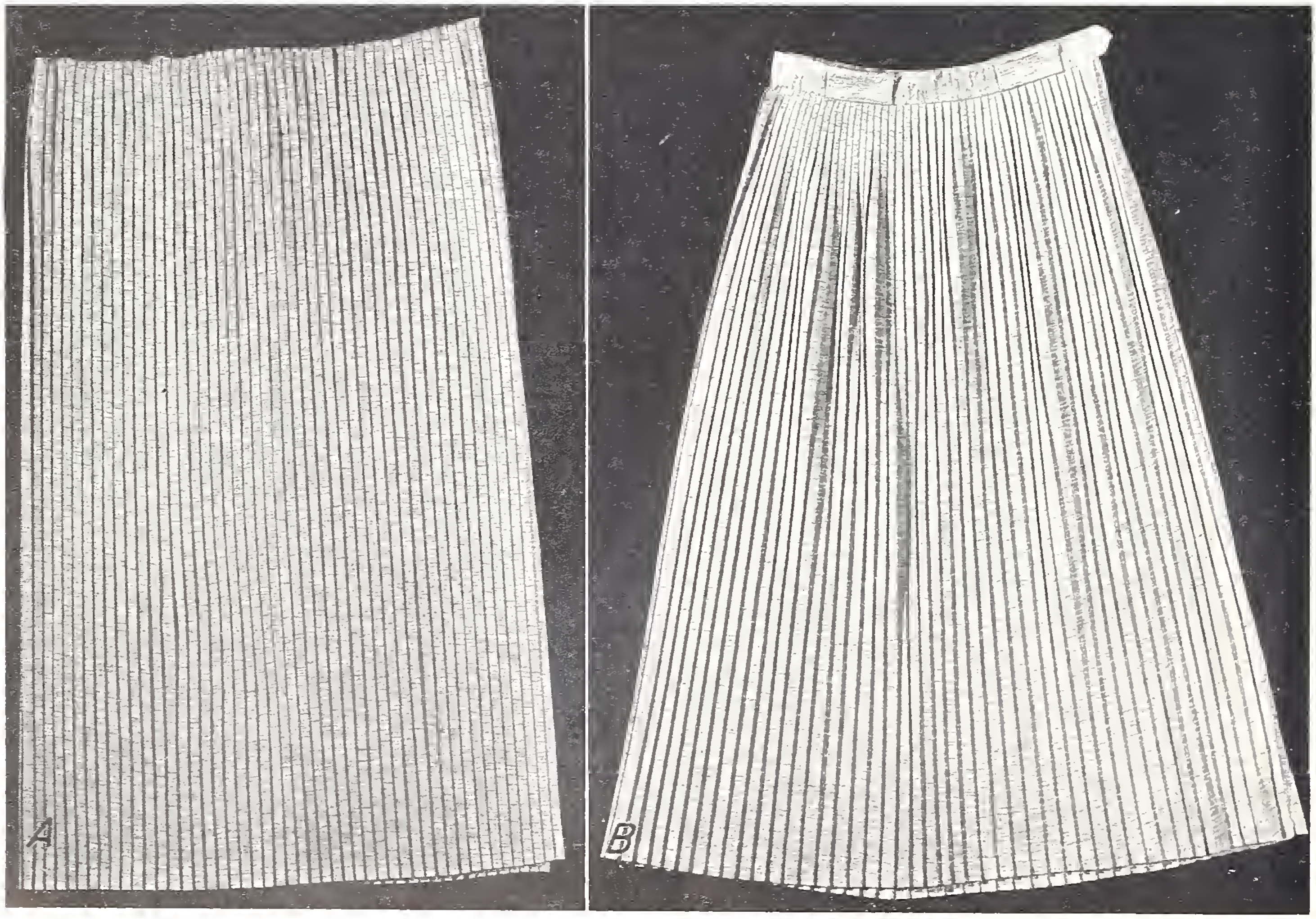
> It resists weakening by sunlight, weathering, and industrial fumes.
>
> It resists damage by acids and many other chemicals and therefore is adapted to certain kinds of work clothing.
>
> It has high bulking power, so adds body and springiness to fabrics.

All-Orlon is used to make fleeces and zibelines for coatings that are lightweight, washable, and need little pressing. It is used also in plain-weave lightweight dress fabrics that are warm and washable. Seams and hems in garments of all-Orlon fabrics should be steam-pressed as they are being made, with a warm iron and a press cloth.

Combined with nylon, Orlon makes a seersucker that is comfortable to wear in hot weather and needs no pressing. Orlon adds softness and wrinkle-resistance to the nylon.

Orlon-and-cotton chambray is firm, crisp, and lustrous. It does not wrinkle badly, resists soiling, and can be ironed dry with a fairly hot iron.

In blends with wool, Orlon makes washable, wrinkle-resistant fabrics—flannels and other suitings that tailor well and jerseys that retain pleats



78373-B, 78374-B

FIGURE 13.—Orlon-and-wool jersey pleated skirting: *A*, Before wearing; *B*, after three seasons' wear and three washings.

reasonably well through wear and cleaning (fig. 13). The blends should be steam-pressed like all-wool fabrics.

Orlon is blended with cashmere to add strength without loss of the luxurious softness of all-cashmere fabrics. It is also blended with Dynel in fleece coatings that are lightweight, and resemble furs in appearance.

Combined with silk, Orlon makes shantungs that are washable and lustrous. Like most of the Orlon-blend fabrics, these shantungs require some pressing after cleaning.

Acrilan

Acrilan is used alone in fabrics of the challis type. These fabrics are soft, warm, lightweight, washable, and wrinkle-resistant.

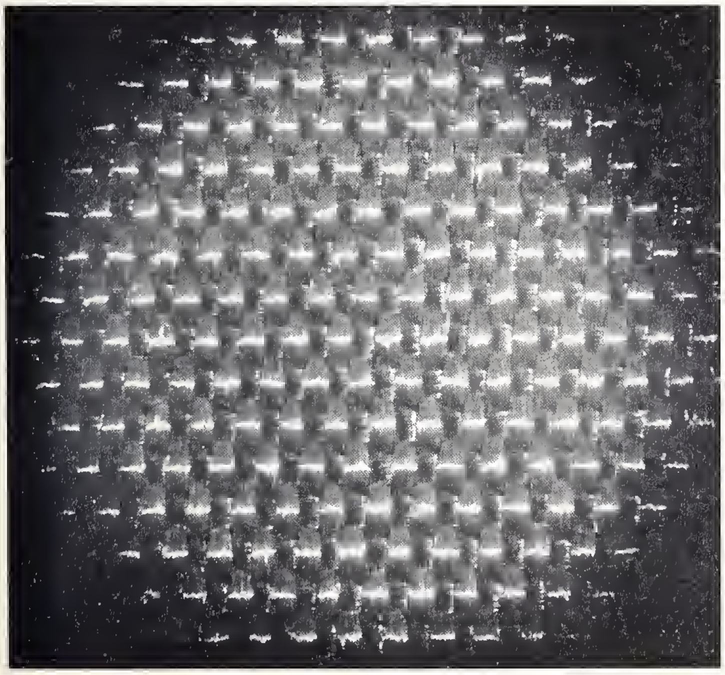
Combined with wool in a jersey fabric, Acrilan contributes softness and washability. A wool and Acrilan jersey requires little pressing after washing.

Acrilan used with rayon makes a suiting fabric that will keep its crease marks through washing but may require slight pressing after it has been washed.

Dynel

Dynel is resistant to many chemicals and so is used for some types of work and industrial clothing.

Because Dynel is particularly sensitive to ironing heat, it is used mainly in napped or pile fabrics that require little pressing or in blends with other fabrics.



78375-B

FIGURE 14.—Plain weave (magnified).

Fleece-type coatings in spring and summer weights are made of Dynel. Resembling fine wool or cashmere fleeces in appearance, they are lightweight, warm, and wrinkle-resistant. They can be washed and need no pressing. When making a coat of Dynel fleece, press seams and hems with a cool iron, on a press pad designed for pile fabrics.

Fabric construction

Woven fabrics

The fabrics most commonly used for clothing are woven—that is, they are made by an interlacing of warp (lengthwise) and filling (crosswise) yarns. The kind and quality of the weave have much to do not only with a fabric's appearance but also with its wearing qualities and warmth.

Types of weaves

There are three basic weaves—plain, twill, and satin.

Plain weave.—In plain weave the warp and filling yarns pass alternately over and under each other (fig. 14). The simplest of the weaves, plain weave is widely used for dress goods.

As a variation, two or more yarns may be picked up at a time instead of only one. The weave can be varied also by the addition of designs by means of special attachments on the loom and by use of novelty or highly twisted yarns.

The term "balanced" describes a plain weave in which the number of yarns to the inch is about the same lengthwise and crosswise. A balanced construction usually makes a fabric that is more durable than one in which the yarns in one direction greatly outnumber those in the other.

In many plain-weave fabrics one set of yarns is heavier than the other. Shantung, for instance, has heavy, uneven yarns in one direction, usually the filling, and finer yarns in the other direction. With this kind of construction, the finer yarns are likely to break and cause the material to split (fig. 15). Many of the materials with heavy crosswise yarns, like bengaline and some of the cotton and silk blends, have a stiff crosswise feel and do not drape well; they are best adapted to rather stiff or bouffant styles.

Twill weave.—Twill weave is identified by pronounced diagonal lines which form an angle with the crosswise yarns (fig. 16).

Many wool suitings are made in twill weave. It is particularly well adapted to the making of napped fabrics, such as velours, suede cloths, and

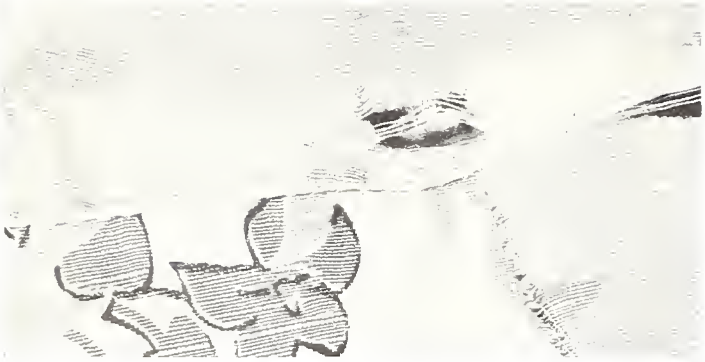

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FIGURE 15.—Fine warp yarns may break along heavy filling yarns.

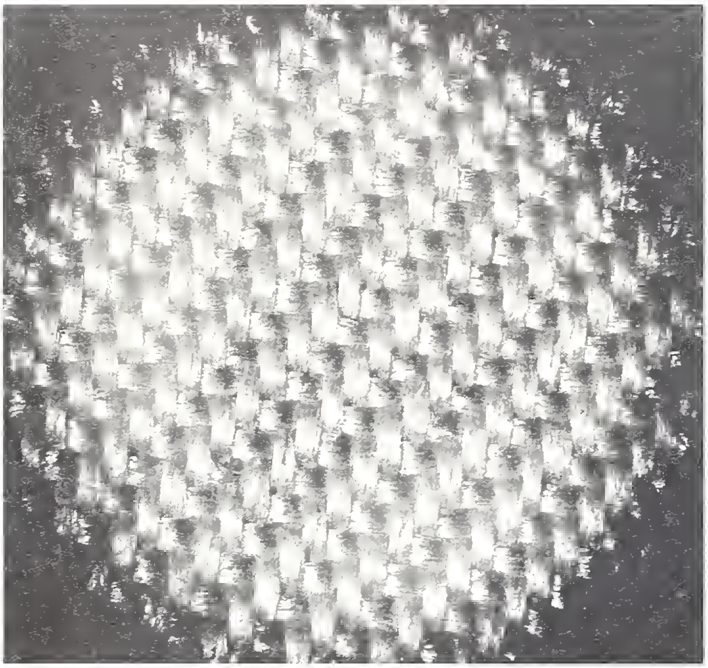
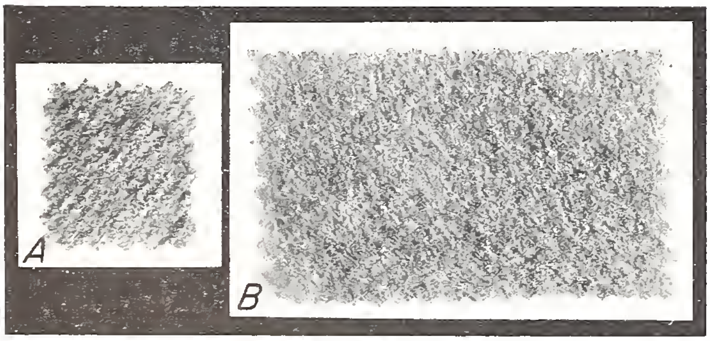

78377-B

FIGURE 16.—Twill weave (magnified).



78378-B, 78379-B

FIGURE 17.—Twill weave: *A*, Before napping; *B*, after napping.

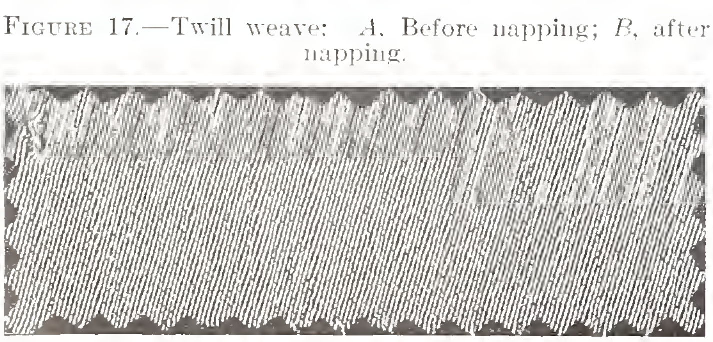

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FIGURE 18.—Gabardine.

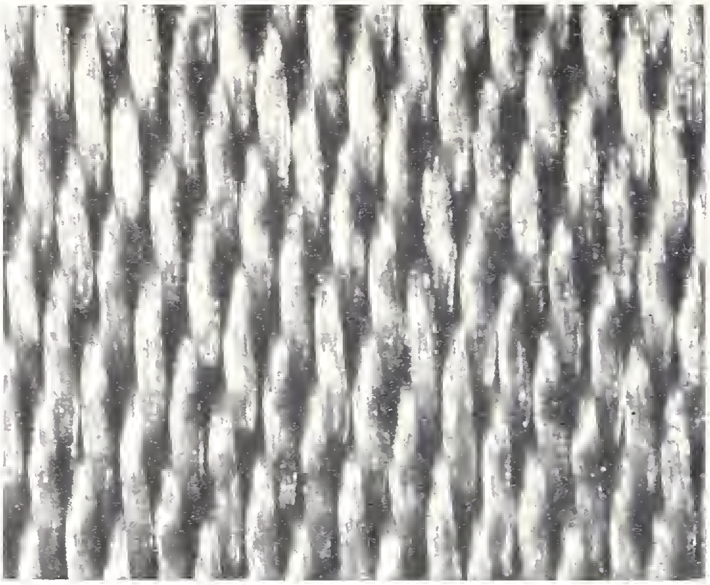
78381-B

FIGURE 19.—Satin weave (magnified).

fleeces in which the fibers are raised after the cloth is woven (fig. 17). It is also the weave used in making sturdy fabrics, such as denims, serges, and gabardines (fig. 18). Twill weave produces pliable fabrics that are usually warmer and drape better than plain-weave materials of the same weight.

Satin weave.—Satin weave produces fabrics with long, loose yarns, called floats, on the right side (fig. 19). The floats add luster to the material and give it a smooth feel in the direction in which they lie. In silk, rayon, and nylon, and sometimes in cotton satins, the floats are lengthwise. Usually a cotton fabric in satin weave has crosswise floats and is called sateen. Satin-weave fabrics are widely used for clothing because of their good draping qualities as well as their lustrous appearance.

As the floats are caught into the fabric only at rather wide intervals, a satin-weave material generally does not wear so well on the face side as fabrics made in either plain or twill weave. The

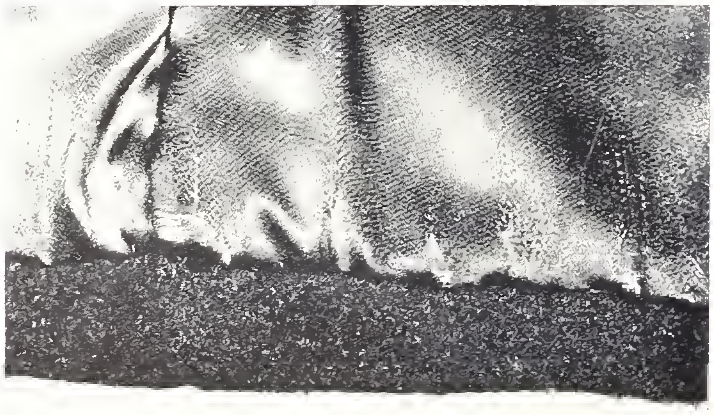
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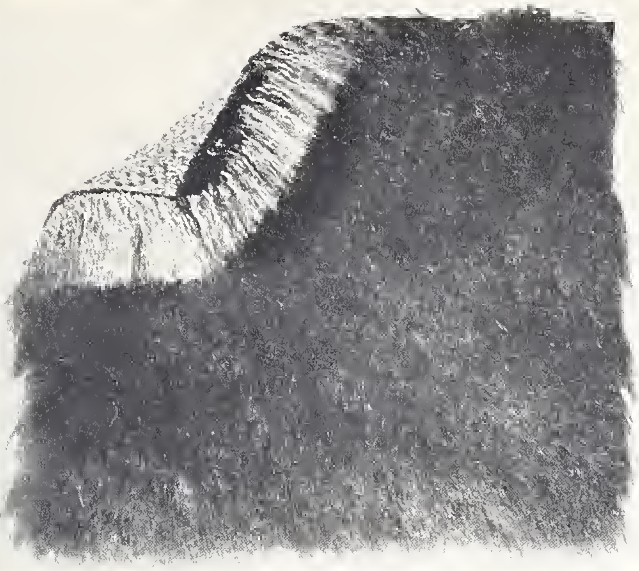
FIGURE 20.—Wear on satin coat lining.



78383-B

FIGURE 21.—Pile fabric.

floats are likely to fuzz up and wear out quickly (fig. 20).

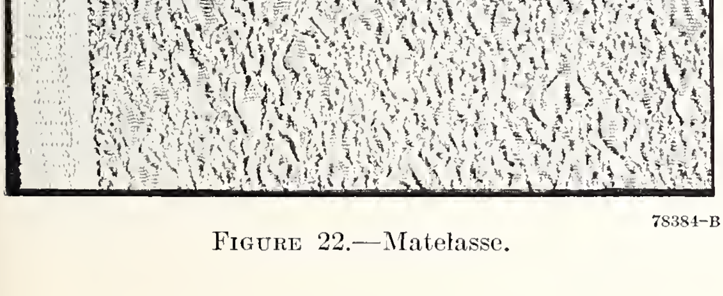
Novelty weaves.—Many variations of the basic weaves are used to produce unusual fabric surfaces.

Velvets and other pile fabrics are made by weaving extra yarns on a ground fabric so that they make an upstanding pile (fig. 21). Most of these fabrics have a cut pile. Density or closeness of pile is a mark of quality.

Matelasses, which are most often of silk or man-made fibers, are produced by using crepe and plain yarns in such a way that the crepe yarns are shrunk, causing the areas of plain yarns to pucker and produce an effect that resembles quilting (fig. 22). This effect is sometimes lost with wear.

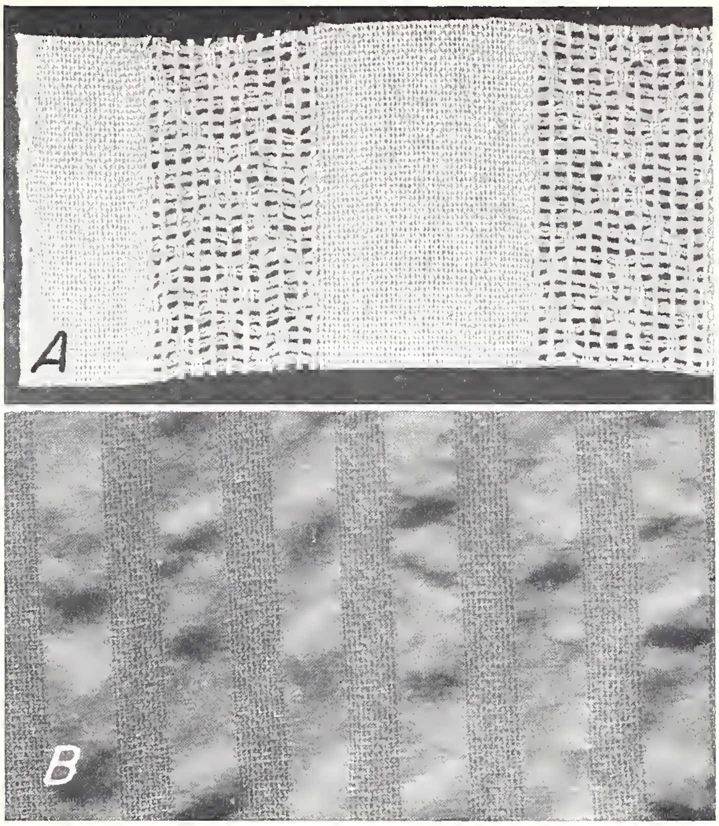
Some sheer novelty-weave fabrics, such as net and marquisette, are woven so that the warp and filling yarns are twisted around each other to keep them from slipping.

Another type of novelty fabric combines bands of openwork with plain weave. In such fabrics uneven shrinkage may cause the plain-weave sections to pucker so that they cannot be ironed smooth (fig. 23).



78384-B

FIGURE 22.—Matelasse.

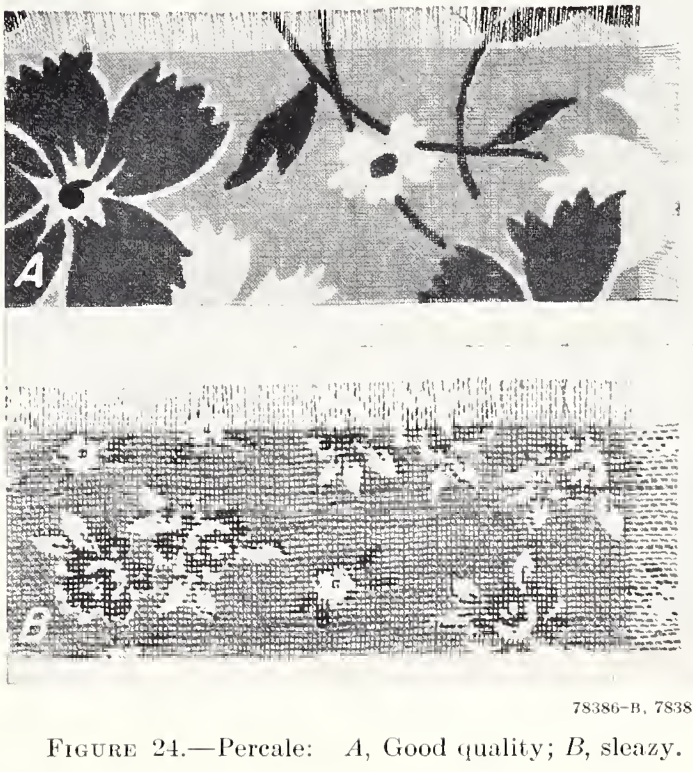


78385-B, 9932-D

FIGURE 23.—Open weave stripe: *A*, New; *B*, open stripe shrunken, causing the plain stripe to pucker.

Quality of weave

Whatever the weave, its quality depends largely on whether it is firm or loose. A fabric that is firmly woven (fig. 24, *A*) is usually more durable and keeps its shape better than a loosely woven material (fig. 24, *B*), because the yarns are less



78386-B, 78387-B

FIGURE 24.—Percale: *A*, Good quality; *B*, sleazy.

easily shifted. Loosely woven fabrics need secure seam finishing to keep them from fraying with wear and cleaning.

In materials of loose weave, sizing may be used to fill the space between yarns and make the fabric look more closely woven than it really is. Coarsely woven sheer fabrics such as dotted swisses and dimities may have an unusually stiff finish to give body. Some of these finishes come out with washing.

Firmness or closeness of weave is not always the quality most desired in a fabric; for various reasons an open weave may be preferred. With such manmade fibers as Orlon and Dacron an open weave may be necessary to make a fabric cool enough for hot-weather comfort. Sheer cotton chambrays (fig. 25) and tissue ginghams also are made with an open weave for the greatest possible coolness.

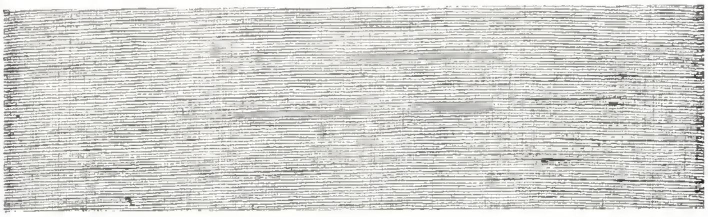
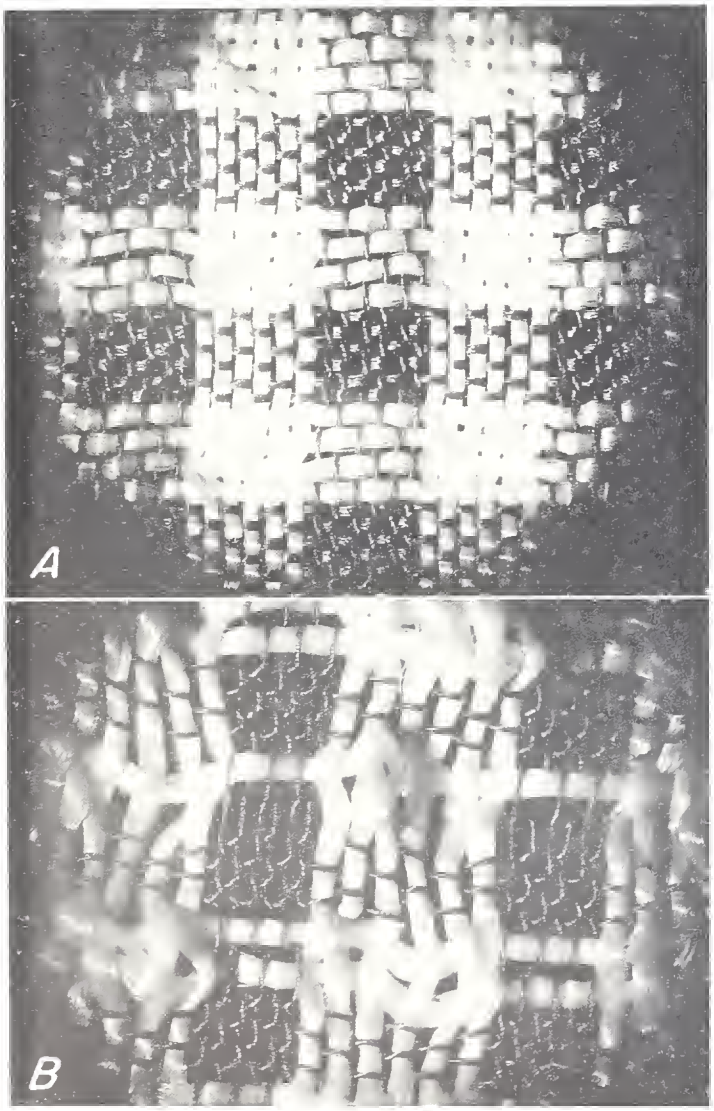

78388-B

FIGURE 25.—Sheer cotton chambray.



78390-B, 78389-B

FIGURE 26.—Orlon-and-nylon seersucker: *A*, Firmly woven; *B*, sleazy (both magnified).

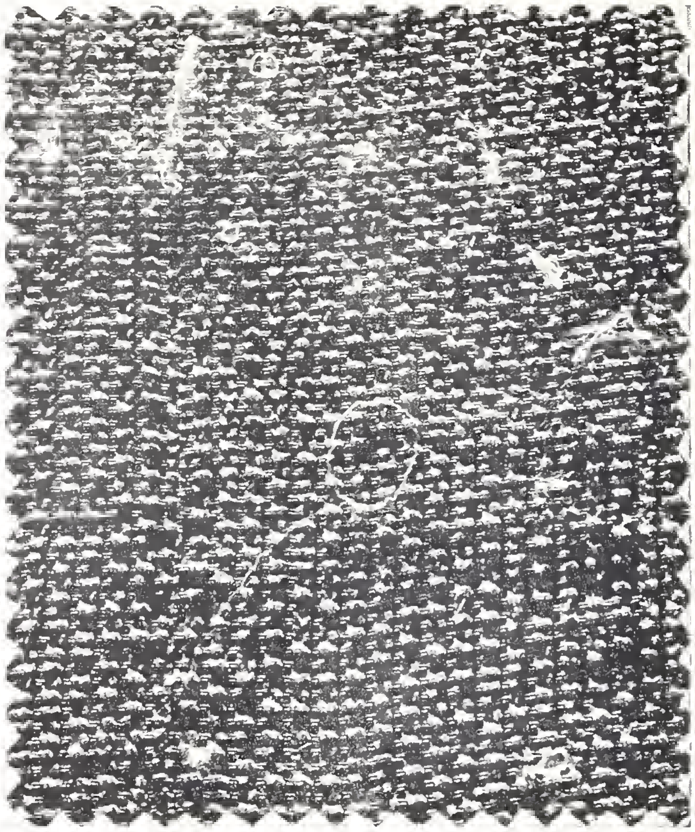

78391-B

FIGURE 27.—Sleazy orlon-and-nylon seersucker snagged in two wearings.

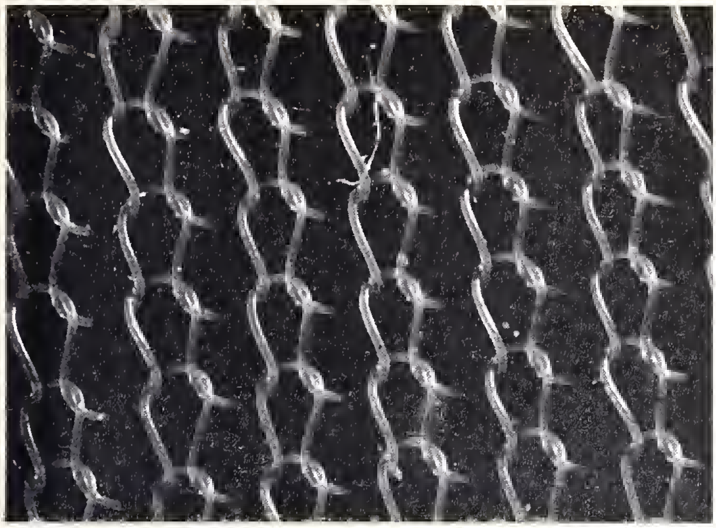
In such fabrics heavier yarns are used to increase durability. Wool voile is another example of a loose-weave material; it is designed as a sheer transparent fabric and not for hard wear.

To produce a puckered effect, rather thick yarns are sometimes woven loosely into a fabric, especially those of some of the stronger manmade fibers. In good-quality materials of this type the yarns are held securely in place (fig. 26, *A*); in poorer qualities they may snag badly with wear (fig. 26, *B*; fig. 27).

Knitted fabrics

Knitted fabrics are made from one continuous yarn or set of yarns held in place by the formation of loops instead of by the interlacing of yarns as in woven fabrics. They are produced on either circular or flat machines and may be filling knit or warp knit.

In filling knit, the yarns go crosswise (fig. 28).



78392-B

FIGURE 28.—Filling knit (magnified).

Because of its construction, filling knit is likely to run and so is not used for cut goods. It is the type of knit found in hosiery and in a great deal of underwear.

In warp knit, the yarns go lengthwise (fig. 29). The fabrics are generally more closely knit, flatter and less elastic than the filling knits. Because they are firmer, they are used for cut-and-sewn garments.

Knitted fabrics usually stretch more than woven ones, respond more readily to body movements. For this reason they are good for hosiery, underclothing, and children's garments. The yarns are more loosely twisted in knitted than in woven fabrics, making materials that are more absorbent and softer.

A warp-knit fabric of wool is known as wool jersey; one of silk or a manmade fiber is generally labeled "tricot."

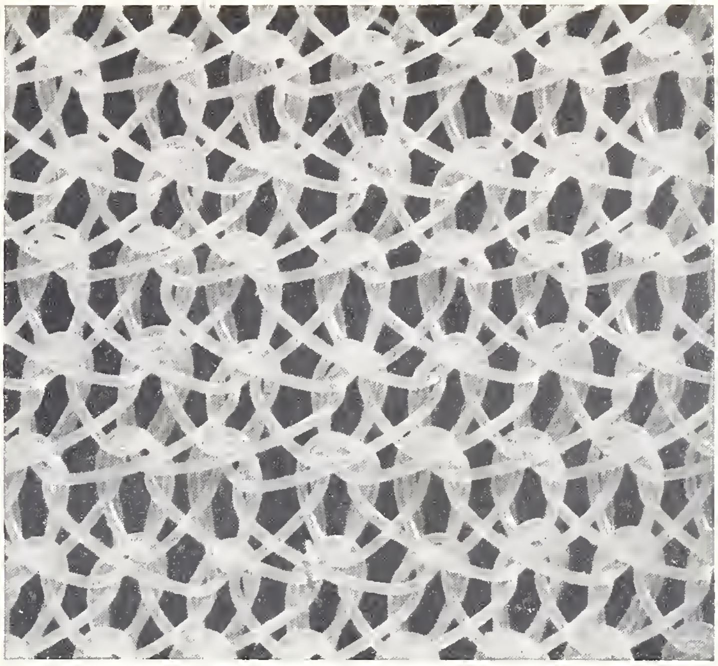
Some winter coatings are warp knit; in them the right side usually is napped, so that the knitting loops can be seen only on the wrong side.

Knitted fabrics, particularly those of wool or cotton, may stretch and sag with wear and shrink in cleaning. However, many are now especially finished to overcome this disadvantage.

Nonwoven fabrics

Of the fabrics classified as nonwoven, those used for clothing are *felt*, which is made of short fibers matted together, and *bonded fabrics*, which are made of short fibers held together by a bonding agent.

Felt is made of all-wool or wool mixed with a manmade fiber, frequently rayon. In thick qualities, felt is used for skirts and jumpers and occasionally for dresses. Felted materials are not so strong as woven fabrics and are likely to shrink in tailoring and cleaning; they therefore need careful handling.



78393-B

FIGURE 29.—Warp knit (magnified).

The *bonded fabrics*, usually of cotton mixed with manmade fibers, are generally used for interfacings where considerable body is needed. In good qualities they do not shrink noticeably in dry cleaning; with repeated laundering, however, they may shrink and lose some of their body. Interfacings of bonded fabrics are less pliable than conventional hair canvas of wool and goat hair and do not mold so well.

Patterns

Patterns in fabrics are produced by weaving, printing, embossing, or embroidering.

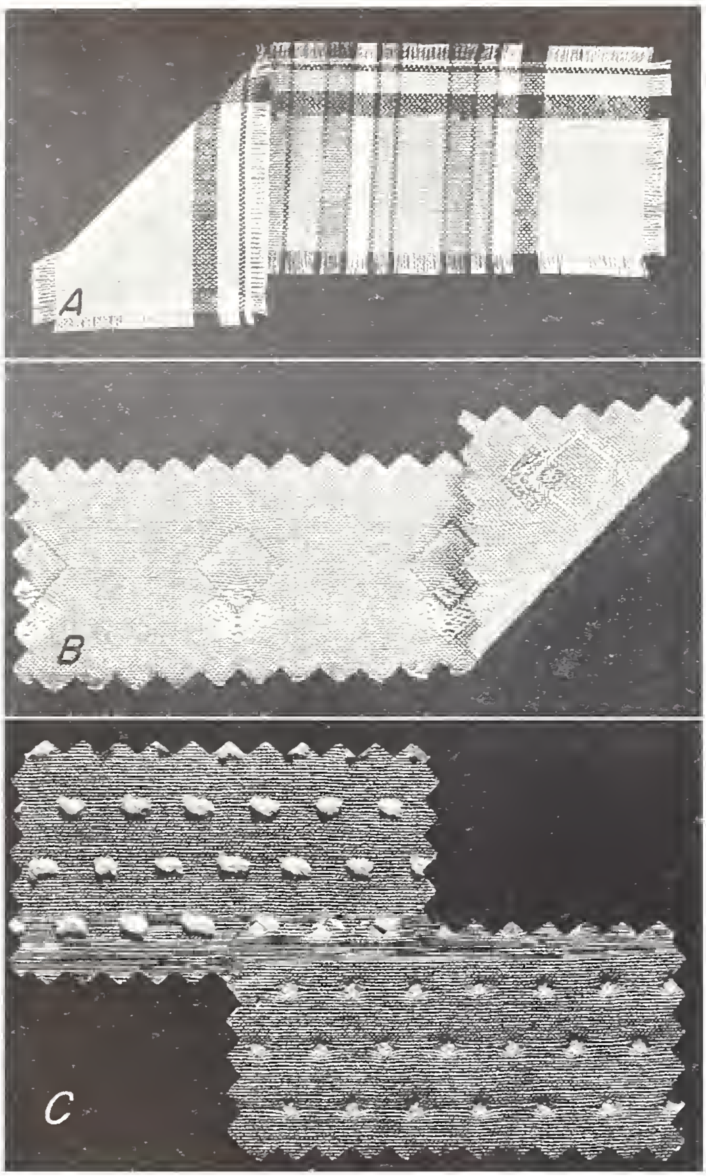
Woven patterns

Several different kinds of patterns can be produced in fabrics in the process of weaving.

By using yarns of different colors, plaids (fig. 30, *A*), checks, and stripes can be produced. In these patterns the design and depth of color are the same on both sides of the material.

Another type of woven pattern is made by means of a special attachment on the loom. Such patterns and the fabrics on which they appear are often called dobbies. The patterns may be made of the warp or filling yarns and look like embroidered figures (fig. 30, *B*).

In the woven or dobby patterns there are no loose ends on the wrong side of the fabric and if the patterns are small, as they usually are, there are no long floats on the right side. Such patterns



78394-B, 78395-B, 78396-B, 78397-B

FIGURE 30.—Woven patterns: *A*, Plaid; *B*, dobby; *C*, dotted swiss, wrong side top left and right side bottom right of C.

wear well. Madras is an example of a fabric produced in this way.

Weaving in extra warp or filling yarns of various fibers or colors is another way of producing patterned fabrics. The yarns may be carried along on the underside of the material as in brocades and jacquards, or they may be cut off so that the short ends are left on the wrong side as in dotted swisses (fig. 30, *C*). Long floats in the jacquards may pull in wear, cleaning, and pressing (fig. 31, *A*); short ones are less likely to snag (fig. 31, *B*). The loose ends sometimes work out of the fabric with wear and laundering. Fabrics with such designs in all-over patterns are likely to be quite wrinkle-resistant; they are also rather thick and warm.

Woven patterns can be produced, too, by reversing the direction of the weave in specified areas (fig. 32, *A*) or in alternate sections over the entire fabric as in herringbones (fig. 32, *B*). Such patterns are permanent.

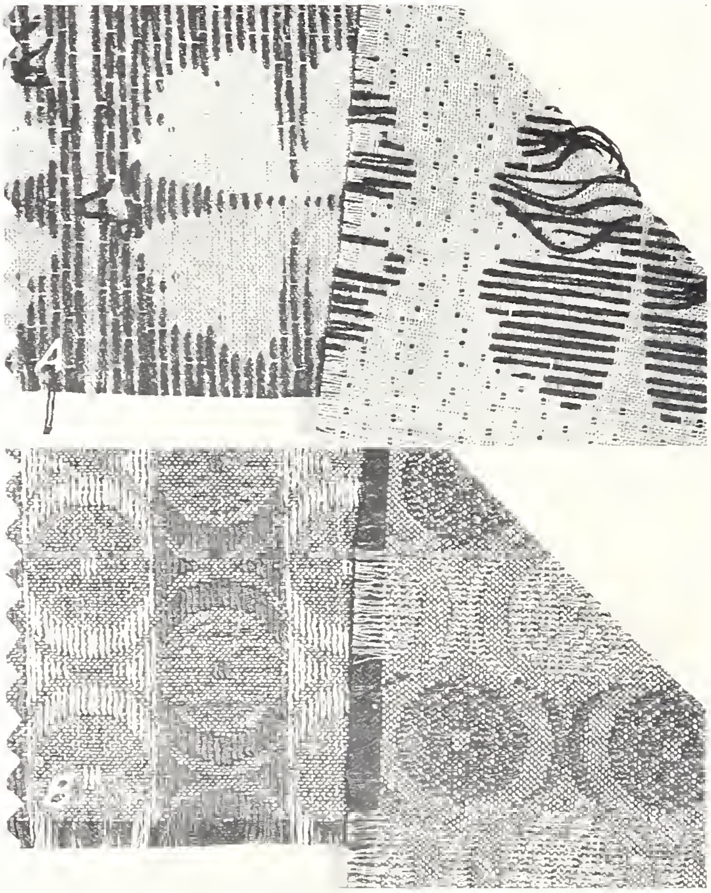
Fabrics with colored woven designs, since they are yarn- or stock-dyed (see p. 20), are likely to have better color fastness than printed ones, in which the dye is chiefly on the surface.

Printed patterns

Printing can be used on both woven and knitted fabrics and makes possible a much greater variety of designs than does weaving.

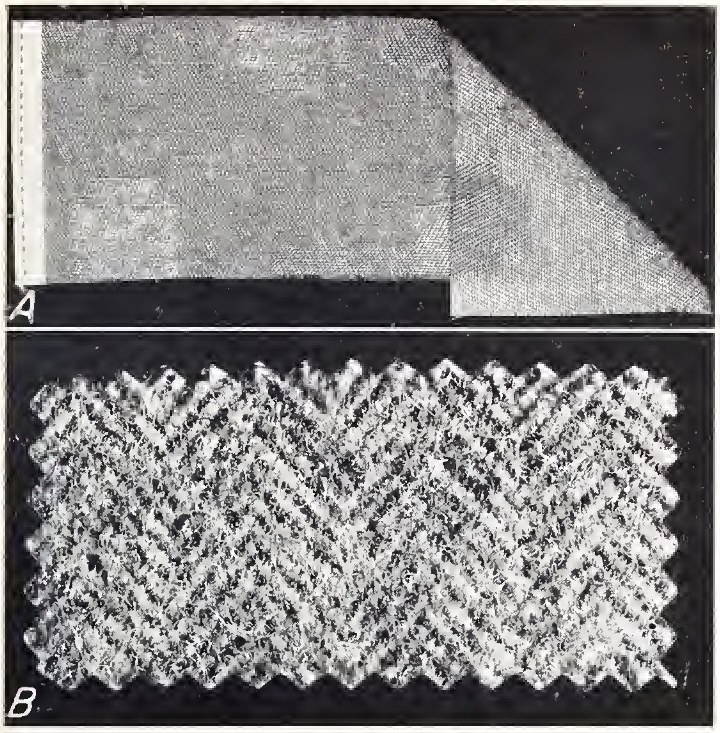
Roller printing.—Most printed patterns are produced by roller printing. The design is engraved on large rollers and the cloth is passed over the rollers; the design is produced on the cloth by different methods.

Many fabrics that have a colored pattern on a white ground are printed by the *direct method;* that is, the dye is applied to the cloth directly from the rollers. A separate roller is used for each color in the design. With this type of printing, color and design are usually much less distinct on the wrong side of the fabric than on the right.



78398-B, 78399-B

FIGURE 31.—Jacquard weave patterns: *A*, Long floats snag; *B*, short floats are less likely to snag.



78400-B, 78401-B

Figure 32.—Woven patterns: *A*, Reverse weave; *B*, herringbone tweed (reverse twill).

When plaids, checks, and stripes are printed in this way rather than woven, they may not be straight with the warp and filling yarns (fig. 33), and it may be impossible to match the design when making a garment.

The *discharge method* of printing is often used for fabrics having a light figure on a dark ground. The cloth is first dyed, then the pattern is produced by removing the color from the design areas by means of chemicals. Sometimes the chemicals weaken the fabric, causing the design area to drop out.

Another way of producing light patterns on colored grounds is by the *resist method.* Here the design is printed on the fabric with a substance that resists dye. The fabric is then dyed, after which the dye-resisting substance is removed.

In *overprinting,* a variation of roller printing, color-carrying resins are made to adhere to the fabric with a bonding agent. This is the usual method of producing metallic or overtone prints (fig. 34, *A*). These prints sometimes can be washed satisfactorily if a mild soap is used. Some may dissolve in dry-cleaning solutions; some may rub off with wear; some give off a disagreeable odor. On some fabrics the design is made of a lacquered adhesive paste, which may discolor, chip, or crack with wear, or dissolve with dry cleaning.

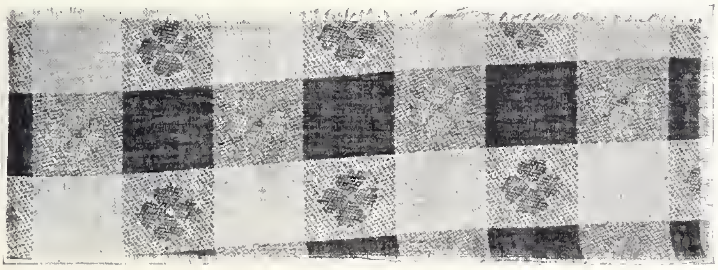


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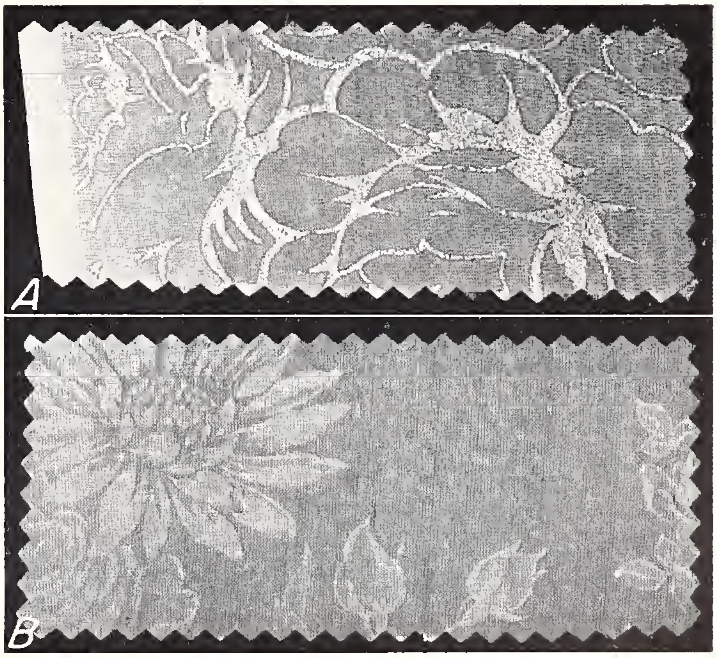
Figure 33.—Printed patterns, check.

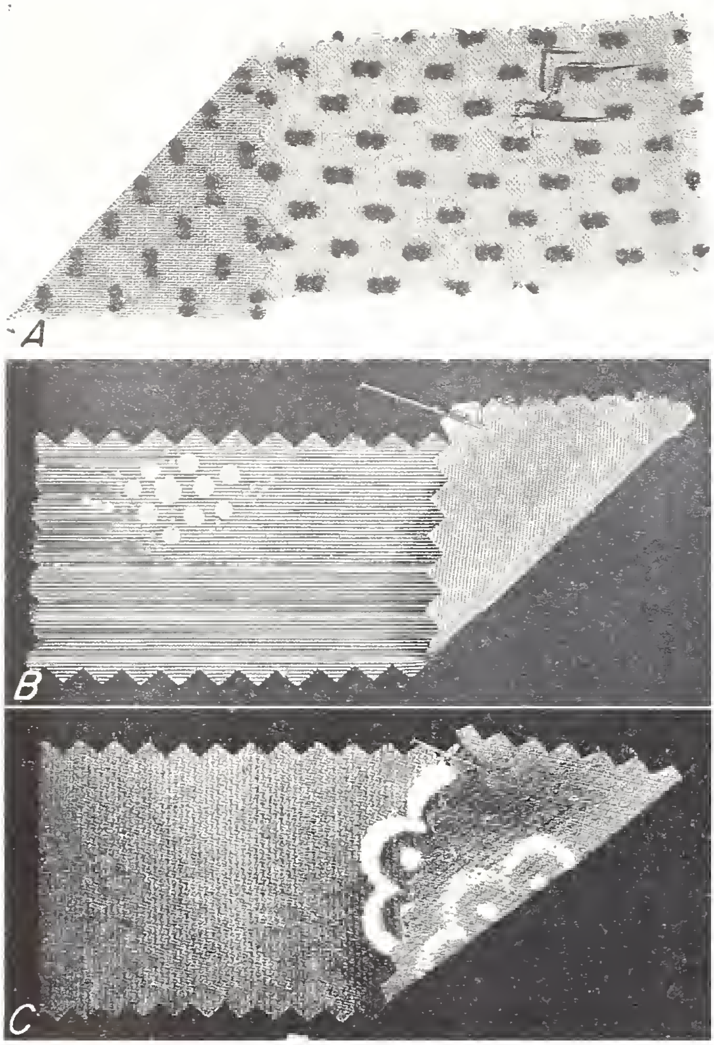
Another variation of roller printing is *pigment printing,* in which the pattern is printed with insoluble pigments that do not penetrate the yarns but remain on the surface of the fabric. To prevent the pigment from being washed off readily, an adhesive is sometimes used to hold it to the fabric. An example of a pigment print is a white pattern on white organdie, often called shadow-print organdie (fig. 34, *B*). In such a print the pattern sometimes becomes less distinct with wear, laundering, and dry cleaning.

Flock printing is a process by which dots or other figures are first printed on the fabric with an adhesive base and then very short cotton or manmade fibers are applied by force. A flock-print material may resemble a dotted swiss (fig. 35, *A*), a polka-dotted fabric (fig. 35, *B*), or a printed material (fig. 35, *C*). The designs usually withstand wear and washing fairly well, particularly if the background material is firmly woven. However, the designs may be badly damaged by harsh washing methods (fig. 36). If acetate fibers are used in the design, ironing may remove some of them.



78402-B, 78403-B

Figure 34.—Printed patterns: *A*, Metallic or overtone; *B*, pigment (shadow-print organdy).



78404-B, 78405-B, 78406-B

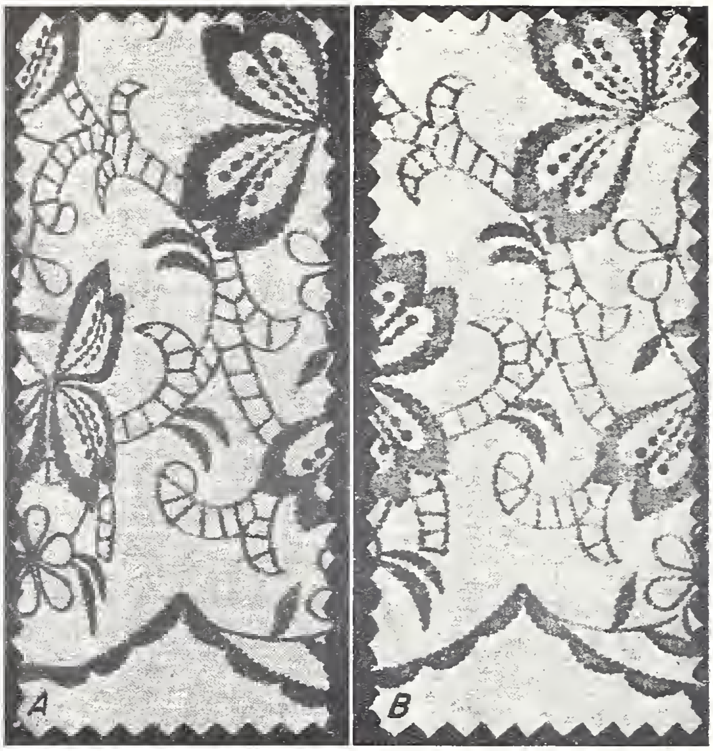
FIGURE 35.—Printed patterns: Flock print may resemble: *A*, dotted swiss; *B*, a polka-dotted material; and *C*, a printed material.

Screen printing.—Screen printing is a method of applying colors to fabrics through a series of silk or wire screens, one for each color in the design. It is a hand process; consequently screen-printed fabrics are likely to be more expensive than other types of prints.

Very large or widely spaced patterns can be made by screen printing. In roller printing, the size of the design and its spacing are limited by the size of the roller. Screen printing is also used when the yardages needed are so small that roller printing would not be profitable.

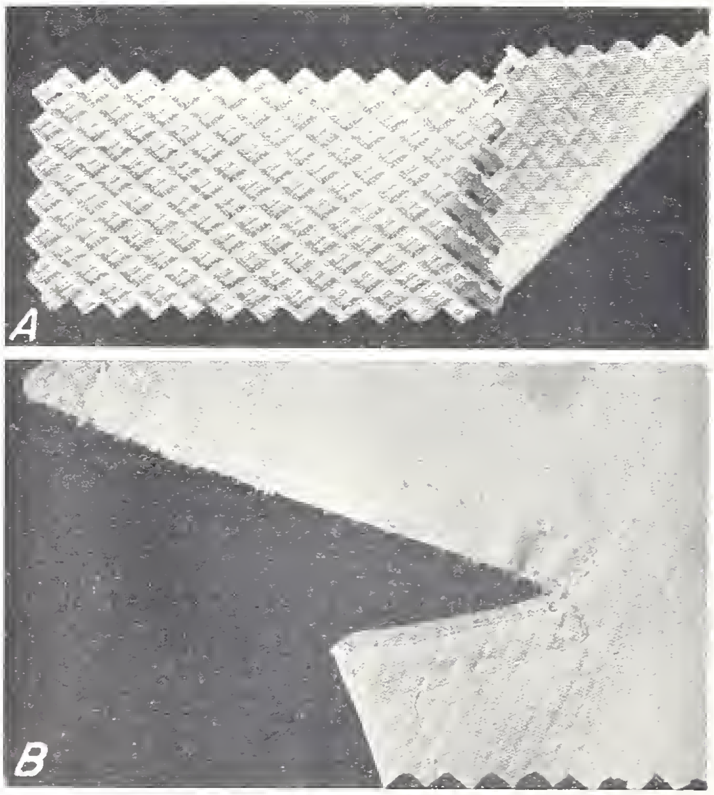
Embossed patterns

To produce embossed fabrics, patterns of various types are transferred by rollers onto fabrics of cotton, silk, or manmade fibers by a process involving the use of resins (fig. 37, *A*). A high satiny luster can be produced in much the same way.



78407-B

FIGURE 36.—Printed patterns, flock print: *A*, Before machine washing; *B*, after machine washing.



78408-B, 78410-B

FIGURE 37.—Embossed patterns, cotton: *A*, Before being worn; *B*, after being worn, showing yarns broken and frayed on sharp edges or pleats.

Embossed designs include some that appear flat, such as moire, ribs, and dots, as well as those that have a definitely raised effect. The flat designs usually last longer than the raised ones, which tend to flatten. Embossed designs are permanent on fabrics of acetate or nylon because of the heat-setting qualities of these manmade fibers. On fabrics of other fibers, the pattern often becomes less prominent with wear and laundering (fig. 38). Some of the embossed cottons, however, need little ironing. Some are labeled "never iron," which means the pattern may be damaged if it is ironed.

Some embossed fabrics, particularly those of firm cotton, occasionally are too warm to be comfortable in hot weather.

Garments made of embossed materials should not be pleated because yarns are likely to break and fray where sharp creases are pressed in. Collar, sleeve, and hem edges also may fray (fig. 37, *B*).

To preserve the original appearance of an embossed material may require special care. Ordinary home bleaches, for instance, may yellow a white embossed fabric. So when you buy materials with embossed patterns, get all the information you can about how to take care of them.

Embroidered patterns

In embroidered materials the design is added to the woven cloth by means of a special machine. Good qualities wear well—the background material is made of fine yarns, firmly woven; the stitches are short and fine, resembling handwork; and the thread ends on the wrong side are trimmed off (fig. 39, *A*).

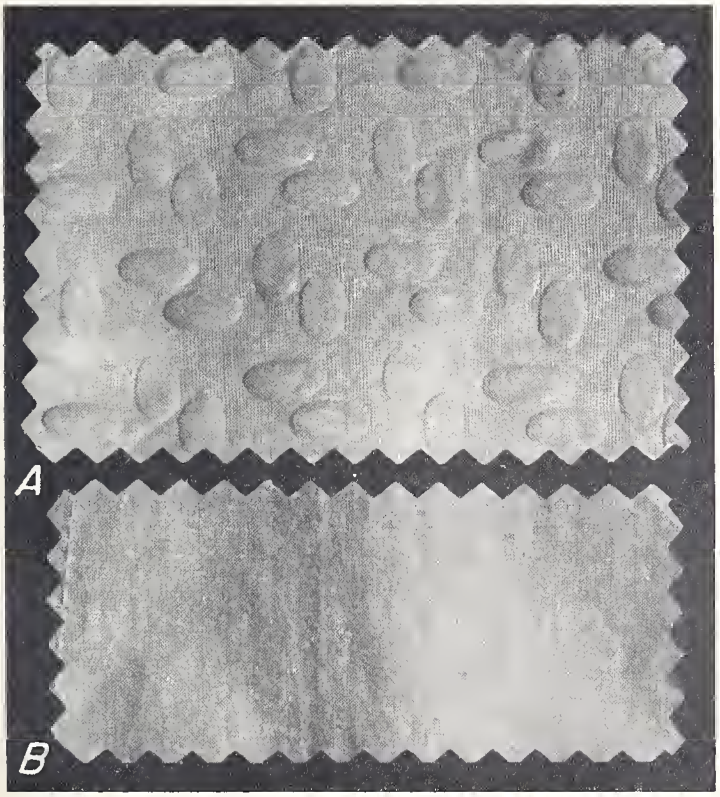


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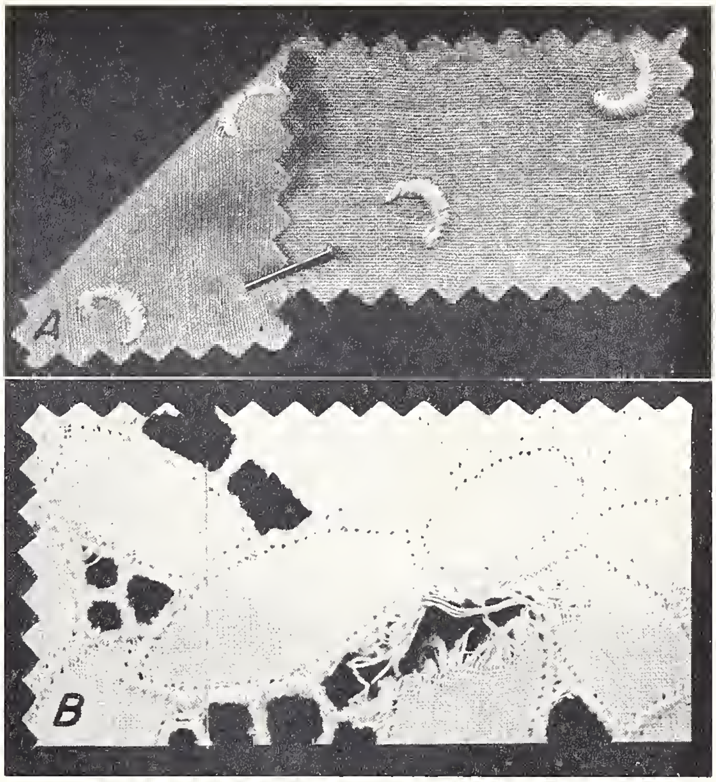
FIGURE 38.—Embossed patterns on cotton: *A*, Before being worn; *B*, flattened with wear.



78411-B, 9934-D

FIGURE 39.—Embroidered patterns: *A*, Solid; *B*, open, showing pattern broken in ironing.

For best wear, choose embroidered fabrics with small open areas. They are easier to iron than materials with large open areas connected by narrow embroidered bands, which are easily broken by the point of the iron (fig. 39, *B*).

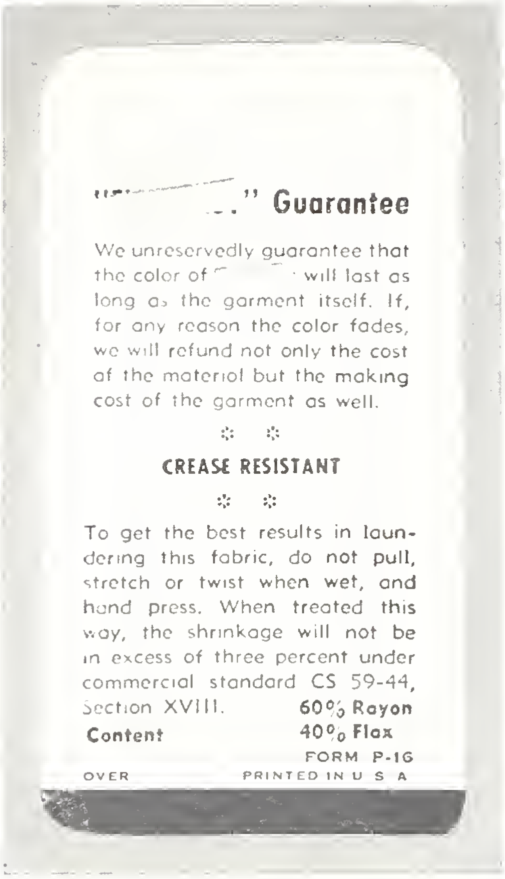
Colorfastness

Colorfastness is one of the important qualities of a fabric, but unless it is guaranteed by the manufacturer or retailer to be colorfast (fig. 40) there is no sure way to tell how satisfactory the color may be.

There are different kinds of colorfastness—to light, to perspiration, to washing, to dry cleaning, to crocking (rubbing off of color when the fabric is dry). The type needed depends on the kind of wear to be given the material. Fastness to light is important for all outer clothing. Fastness to perspiration is particularly important for work and play clothes and garments for warm weather wear.

Method of dyeing

Whether the dye was applied to the fiber, the yarn, or the cloth determines to some extent the



" ." **Guarantee**

We unreservedly guarantee that the color of will last as long as the garment itself. If, for any reason the color fades, we will refund not only the cost of the material but the making cost of the garment as well.

⁂

CREASE RESISTANT

⁂

To get the best results in laundering this fabric, do not pull, stretch or twist when wet, and hand press. When treated this way, the shrinkage will not be in excess of three percent under commercial standard CS 59-44, Section XVIII.

	60% Rayon
Content	**40% Flax**

FORM P-16

OVER PRINTED IN U S A

78369-B

Figure 40.—Label indicating colorfastness.

colorfastness of a fabric. Sometimes by examining the material carefully you can tell what method of dyeing was used.

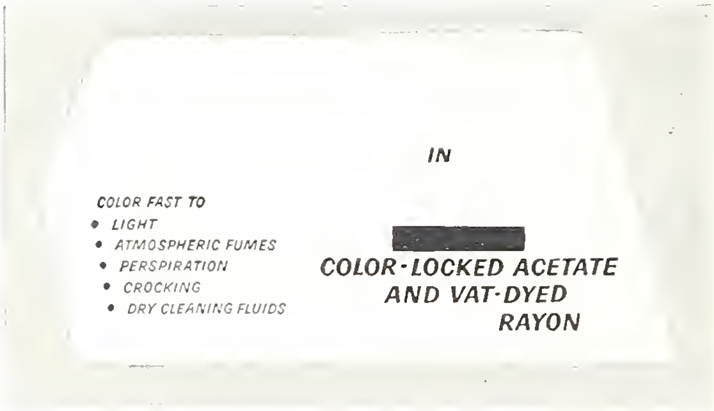
Fabrics with colored woven designs or plain materials woven with different colored yarns are generally either "stock-dyed" or "yarn-dyed." Stock-dyed means that the fibers were dyed before they were made into yarn; yarn-dyed, that the yarns were dyed before being woven into cloth. Fabrics that are dyed after weaving are "piece-dyed."

Dye usually penetrates the fiber or yarn better than it does the woven fabric and, therefore, colors are likely to be more permanent in stock- or yarn-dyed material than in piece-dyed goods. If torn ends of a solid-color material have a white or light appearance, it indicates that the material is piece-dyed and that the dye did not penetrate well.

"Spun-dyed" is a term sometimes used on labels of fabrics of manmade fibers. It means that the filaments were spun from a solution to which the dye was added. Spun-dyed fabrics are sometimes termed "color locked." They are usually fairly fast to light, perspiration, washing, and dry cleaning. When buying spun-dyed fabrics, be sure they are labeled "preshrunk;" they are likely to shrink with washing or dry cleaning unless specially treated.

Kind of dye

The kind of dye also influences the colorfastness of a fabric. Vat dyes, if properly applied, are among those with the best fastness to light, perspiration, washing, dry cleaning, and crocking. They can be applied successfully to cotton, linen, rayon, and some wool. However, "vat-dyed" on a label does not always assure complete colorfastness; you also need information on the kind of colorfastness. Not all vat colors are equally fast. Some are fast to light but not to washing; some may not be fast to crocking.



IN

COLOR FAST TO
- *LIGHT*
- *ATMOSPHERIC FUMES*
- *PERSPIRATION*
- *CROCKING*
- *DRY CLEANING FLUIDS*

[redacted]

COLOR-LOCKED ACETATE AND VAT-DYED RAYON

78412-B

Figure 41.—Label indicating resistance to fume fading.

Fluorescent dyes are very brilliant and are not affected by washing or dry cleaning, but they are not especially fast to light.

Some of the newer manmade fibers are difficult to dye so that they will be fast to light and cleaning. For them, special dyes and new methods of dyeing have had to be developed. Complete ranges of fast colors are not yet available for all these fibers, but continued research is increasing the number obtainable.

Some materials of manmade fibers—acetates, for example—are subject to gas fading because of the types of dyes that must be used on these fibers. However, special finishes and new methods of dyeing minimize the problem (fig. 41).

Special finishes

To add a property that a fiber lacks or to counteract an undesirable property, various special finishes have been developed which have greatly increased the wearability of many fabrics. Materials treated with these finishes usually are labeled to indicate their special properties.

A finish may give more than one property to a fabric. A water-repellent finish, for example, may also make a fabric resistant to wrinkling and to nonoily stains. Another finish may add resistance to shrinking and mildew damage as well as to wrinkling.

Some finishes hold the yarns so firmly in place that washing and steam pressing may be needed to straighten the material for cutting.

When buying a fabric that has a special finish be sure the finish is guaranteed to last through laundering or dry cleaning or can be renewed by the cleaner. Otherwise, the extra cost may not be worthwhile. Get information, too, on any special care that is needed in washing or dry cleaning the material.

The most commonly used special finishes are as follows:

Anti-curl finish.—Used on cotton organdies to keep corners from rolling.

Flame-resistant finish.—Prevents fabrics from burning readily. Especially important for fabrics with a napped or fleecy surface, such as brushed rayon, cotton or rayon chenille, and cotton flannel, which catch fire easily from open flames or cigarette sparks. A Federal law, the Flammable Fabrics Act of 1954, provides that no article of wearing apparel subject to the Act may be sold if it is so highly flammable, according to prescribed tests, as to be dangerous when being worn.

Fume-fading-resistant finish.—Retards fume fading, which is caused by the action of certain atmospheric gases on some dyes, particularly those applied to acetates. Unless treated with such a finish, or dyed by a special method that develops resistance to fume fading, acetates sometimes change color completely even before dry cleaning.

Glazed finish.—Used to give a shiny appearance to fabrics of cotton, rayon, acetate, or nylon. Some of these finishes come off with the first washing; others last for some time. To be sure that a glazed finish will give satisfactory service, look for one labeled "permanent" and follow carefully any laundering directions given on the label.

Insulated or reflective finish.—Coating of a metallic substance, such as aluminum, applied to one side of a fabric. Used for coat linings, fabrics with insulated finish are usually warmer than untreated fabrics. If not properly applied, the finish may come off in cleaning.

Mildew-resistant finish.—Applied to fabrics, especially cotton, rayon, and linen, which are subject to damage by mildew when exposed to warmth and moisture. A mildew-resistant finish is important for fabrics to be used in warm, humid climates.

Minimum-care finish.—Applied to cottons and rayons to help them dry smoothly after washing so they will need a minimum of ironing.

Moth-resistant finish.—Helps make wool resistant to attack by moths. It is of special importance because of the large amount of damage done annually to wool garments and fabrics by moths and the expenditures of consumers for moth repellents. When you buy wool materials or clothing with a moth-resistant finish, find out how long the finish should last and what special care should be given the fabric.

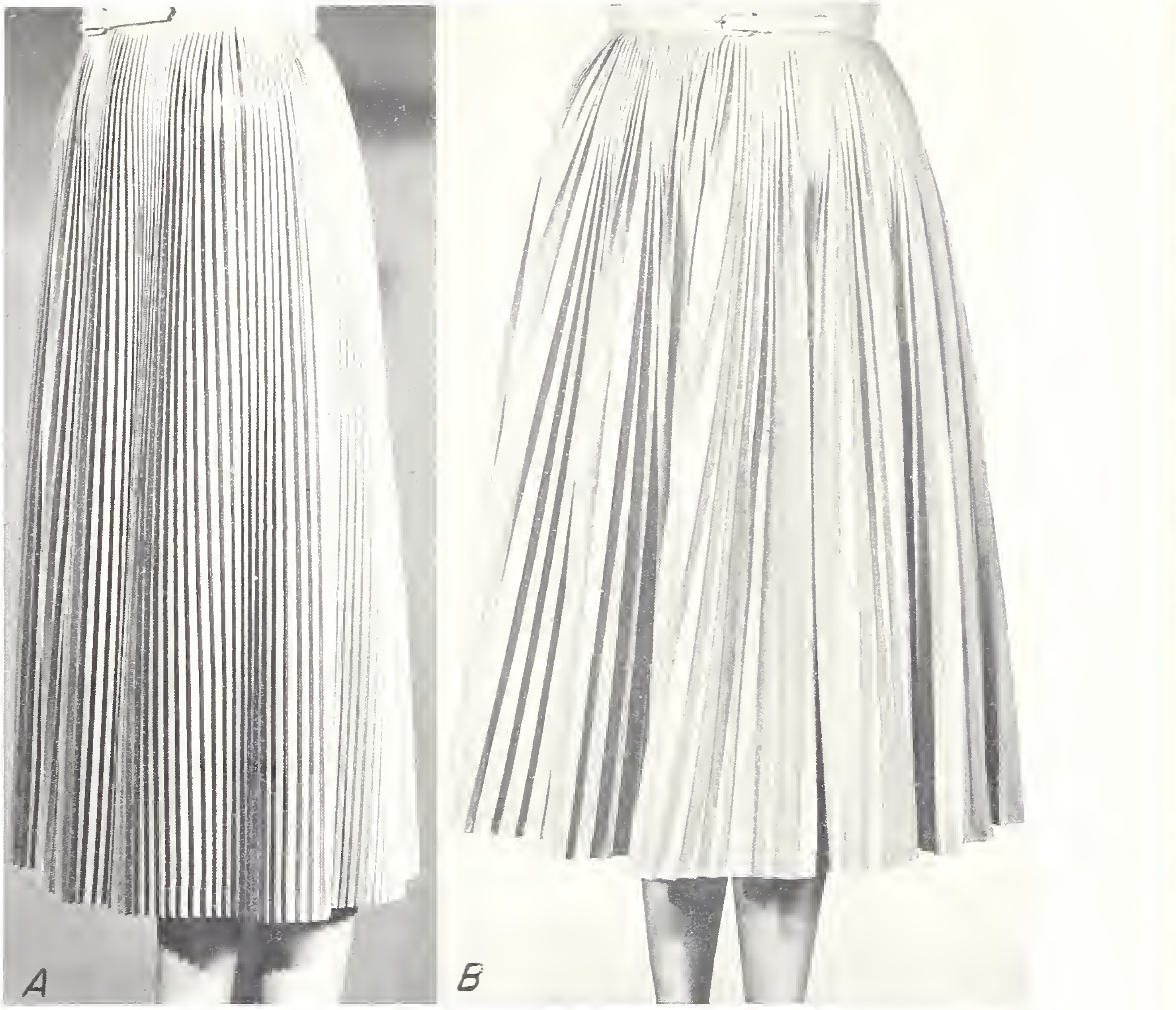
Permanent finish.—A term used for various treatments given to fabrics so that they will retain their original finish or acquire new characteristics. The so-called permanent finishes are usually applied to fine cottons and rayons and are used most often to give crispness to sheer fabrics such as lawn and organdie. Some of the finishes are satisfactory; others lose their effectiveness with washing or dry cleaning.

Permanent-pleating finish.—Used on fabrics, such as cotton, which do not retain pleats without special treatment. Even with these finishes, such fabrics do not hold pleats so well as do fabrics of the manmade fibers that can be permanently set by heat. Much of the finish may be lost with wear and laundering (fig. 42).

Perspiration-resistant finish.—Applied to cotton, rayon, and wool to make the fabric and color resistant to the deteriorating effects of perspiration.

Shrinkage-resistant finish.—Reduces shrinkage in a finished fabric to a minimum—about 1 or 2 percent. It can be applied to cotton, rayon, and wool. Though a garment with a shrinkage-resistant finish may still shrink slightly with washing or wet cleaning, it should not shrink out of fit.

Slip-resistant finish.—Developed to keep the yarns of a fabric in place so that they will not slip and spoil the appearance of the material. A slip-resistant finish can be applied to fabrics made of any fiber.



78413-B, 78414-B

FIGURE 42.—"Permanently" pleated cotton skirt: *A*, Before being worn; *B*, after being worn and washed once.

Spot- and stain-resistant finish.—Prevents stains from penetrating a fabric readily. It does not completely eliminate the problem, but a fabric with such a finish will not spot or stain so readily as an untreated material.

Static-elimination finish.—Applied chiefly to fabrics or fibers which normally tend to accumulate static electricity, to keep them from clinging to other garments or to the skin. Most of the static-elimination finishes as yet available are not permanent.

Water-repellent finish.—Applied to fabrics of cotton, rayon, wool, nylon, and silk to make them resistant to rain, though not waterproof. A water-repellent finish allows passage of air, water vapor, and perspiration through the material, making a "breathing" fabric which is more comfortable to wear than a waterproof one, which has the open spaces completely sealed.

When buying garments or fabrics with a water-repellent finish, look for the manufacturer's guarantee on the label. Many of the finishes last through several washings or dry cleanings; some are removed with one cleaning. One brand is renewable; that is, it is removed by dry cleaning but can be renewed by the dry cleaner.

Wrinkle-resistant finish.—Applied to cottons, linens, rayons, and nylons to make them resistant to wrinkling and help them recover rapidly from wrinkling. Some of the finishes are more resistant than others and some fabrics respond better to the treatment than others. Voile and gingham, for instance, can be treated so that they will show very little wrinkling. Most rayons, on the other hand, will show some wrinkles; good-quality linens, too, may wrinkle to some extent but will not have a rumpled look.

Fabrics treated with an effective wrinkle-resistant finish often are easier to iron than untreated materials; they also soil less readily.

Occasionally a wrinkle-resistant finish makes a fabric so resistant to wrinkles that it will not take an adequate press and, consequently, seams, hem lines, and collar edges look puffy instead of smooth and flat. Sometimes the finish tends to weaken the fabric somewhat.

You can test the effectiveness of the finish by crushing the material in your hand to see whether it wrinkles and whether the folds disappear. Be sure that the finish is labeled "permanent."

Some staple fabrics

Some types of fabrics have been used for clothing for many years and are usually available on the market. These staple fabrics may have been varied by the use of special patterns, new kinds of yarns, or unusual finishes so that they look very different from the original materials of the same name. Moreover, they may be made in different qualities. Price is sometimes an indication of certain qualities but not necessarily of durability—qualities, such as fineness of yarn, novelty weave, unusual design or color, that add to the cost of production may make a fabric more desirable for certain purposes, but may not make it wear better. In the descriptions given here no attempt has been made to include all the variations in staple fabrics or all the different qualities.

Albatross.—A plain-weave, lightweight wool fabric with a crepy surface (fig. 43), usually hand washable and easy to iron. Because it frays easily, it requires secure, ample seams. Used for robes, infants' clothing.

Alpaca.—1. A wiry, plain-weave, lustrous fabric made from alpaca hair and cotton. A hard-wearing fabric but difficult to press smooth. Generally used for suits and dresses.

2. A fabric of rayon, similar in appearance to that of alpaca hair and cotton, used for dresses.

3. A warm fleece coating with alpaca face and cotton back. Much used for sports coats and for trim on heavy cold-weather coats.

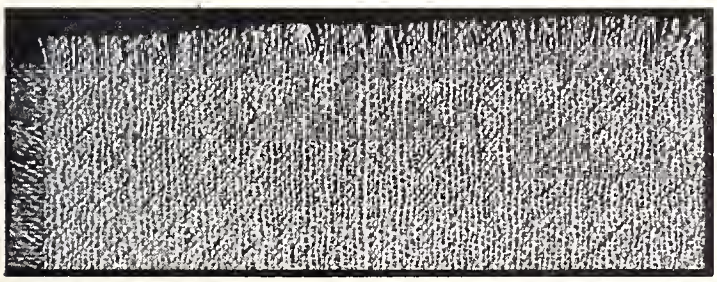


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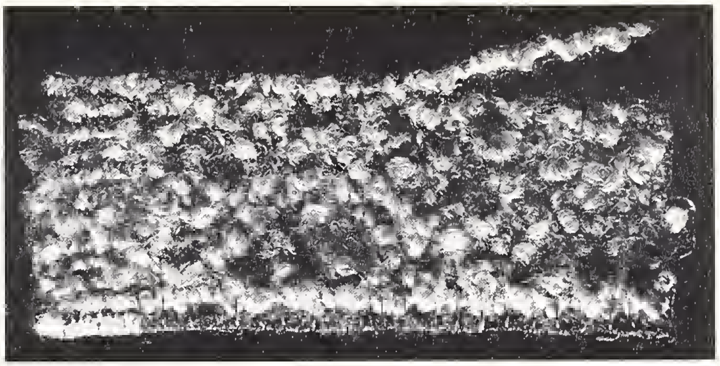
Figure 43.—Albatross.



78416-B

Figure 44.—Boucle.

Batiste.—1. A soft, sheer, plain-weave fabric of combed cotton that has a lengthwise streaked appearance. In good qualities it is usually highly mercerized. Used for blouses and infants', women's, and children's dresses.

2. A fabric termed "nylon batiste" has a crosswise streaked effect and is usually crisp rather than soft.

3. When made of wool, batiste is a sheer, smooth fabric of fine worsted yarns.

4. A new type of batiste made of Dacron and cotton resembles the cotton fabric in appearance but is heavier. See page 10.

Boucle.—Fabric made with yarns that have occasional curls or loops (boucle yarn), giving a rough nubby appearance (fig. 44). May be made of cotton, rayon, silk, nylon, worsted, or mixtures. Wool boucles are generally used for dresses, suits, sweaters. The material is likely to get fuzzy with wear, especially in wool coatings if the loops are rather long.

Broadcloth.—1. Wool broadcloth is a smooth, lustrous, twill-weave fabric with a pronounced nap or "up and down." In good qualities, it has a soft velvety feel. Used for luxury coats, suits, dresses. In very expensive broadcloths, fur fibers are often combined with wool to give a soft, light feel to the fabric.

2. Cotton broadcloth is a plain-weave fabric with a fine crosswise rib made by using filling yarns that are heavier than the warp yarns. In good qualities, fine yarns and high mercerization give a silky appearance. Used for men's shirts and for dresses and blouses for women and children.

3. Broadcloth of manmade fibers has the ribbed appearance of the cotton fabric.

Brocade.—A fabric with slightly raised woven-in figures on a plain- or satin-weave ground, sometimes referred to as a jacquard. Made of silk, wool, cotton, or one of the manmade fibers. On the wrong side the yarns are carried along from one pattern to the next (see p. 16). The material is used for such garments as dresses and coats. If metallic yarns are used in the design, be sure that they are tarnish resistant.

Challis.—A soft, lightweight, plain-weave fabric usually made of wool (fig. 45), manmade fibers, or blends. The yarns are fine and woven close together. Challis resembles albatross in appearance and weight, but has a smooth rather than a crepy look. Generally washable. May be solid color or printed. Used for dresses, blouses, children's and infants' clothing.

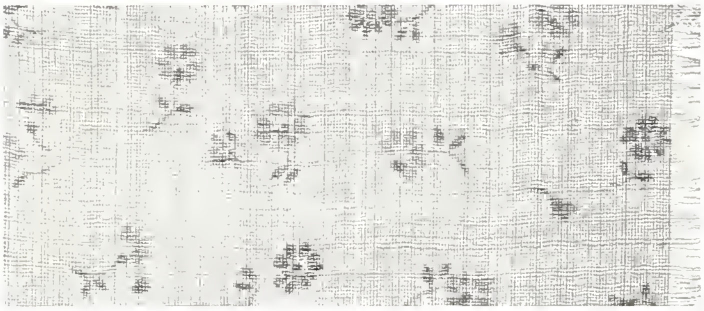

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FIGURE 45.—Wool challis.

Chambray.—A plain-weave cotton fabric usually with dark warp and white or light-colored filling yarns, or the reverse. It is made in several weights:

1. Heavyweight—rather loosely woven of coarse yarns; used for men's work clothes.
2. Medium or dress weight (fig. 46)—in good qualities is closely woven of fine yarns and has a mercerized finish; poorer qualities are of coarser yarns, more loosely woven.
3. Sheer—has an open weave for coolness and is usually mercerized; used for summer dresses and blouses.

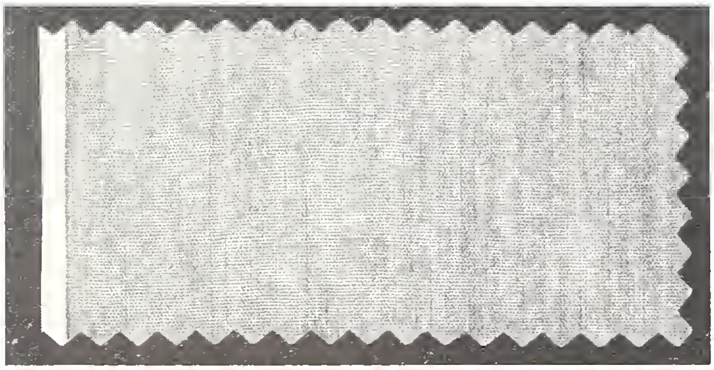
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FIGURE 46.—Mediumweight chambray.

Chenille.—True chenilles are made from chenille yarns, which have a fuzzy pile protruding from all sides. The fabric now commonly called chenille is muslin tufted with soft, coarse cotton yarns (fig. 47). Good for winter bathrobes because it is soft, warm, and washable.

Chiffon.—A very sheer, soft, plain-weave fabric with a slightly creped appearance. It is made of silk, rayon, or nylon and used for blouses, scarves, and evening dresses.

China silk.—A soft, thin, plain-weave fabric of silk, made in China and Japan. Not very durable. Often used for dress linings and dress protectors; heavier weights are used also for blouses.

Chintz.—A lightweight, plain-weave cotton fabric with a highly glazed finish. Often used for aprons and dresses, although originally intended for household uses. Sometimes the glazed appearance is lost with the first washing, so when buying chintz be sure that the finish is labeled "permanent."

Corduroy.—A fabric of cotton, rayon, or nylon with a cut pile in lengthwise rows or cords. A good-quality corduroy has a firm background and a dense pile. Corduroys are warm and washable. Heavyweight corduroy, a rather stiff cotton fabric with a very short pile, is generally hard-wearing, much used for men's and boys' slacks and jackets. Medium and light weights are used for women's and children's winter dresses, skirts, and jackets.

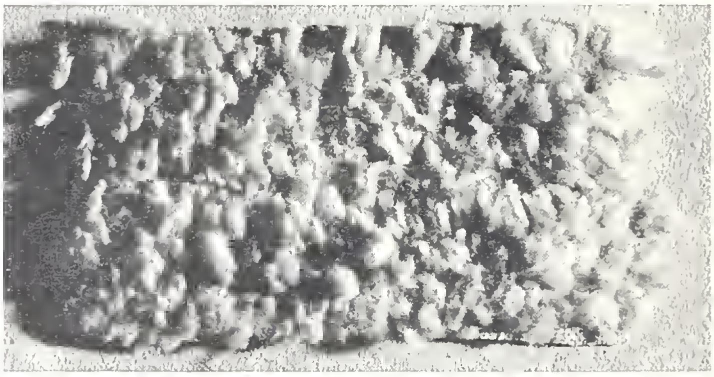
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FIGURE 47.—Chenille fabric.

Covert.—A fabric with a rather coarse, steep twill, usually made of wool, cotton, or manmade fibers, with a flecked or mottled color effect. Usually wears well. Wool covert, which has a soft nap, is used for topcoats; cotton or rayon covert, for slacks and uniforms.

Crepe.—A fabric made from yarns that have been highly twisted (fig. 48). The twist, which produces the characteristic crinkled surface of a crepe, generally increases the strength of the yarn, which in turn adds strength to the fabric. Crepes can be made from cotton, silk, wool, or the manmade fibers and are used for lingerie, blouses, dresses, coats, and suits.

Flat crepes, used mainly for lingerie and blouses, are generally washable. Crepes with a more pronounced crepy texture are likely to shrink with washing and so should be dry cleaned unless they are labeled "washable."

Damask.—A satin-weave fabric; that used for clothing is patterned. The figures may have floats in the filling direction; the background floats may be in the direction of the warp. Cotton damasks are used for blouses and dresses. Because of the floats the fabrics are likely to become fuzzy and soil easily and are sometimes hard to iron when damp.

Denim.—A twill-weave fabric, usually with colored warp yarns and white or light-colored filling yarns. Generally made entirely of cotton but may have one set of yarns of a manmade fiber for a more lustrous effect or additional strength. Good-quality denims are closely woven, contain no sizing, and are preshrunk and colorfast.

All-cotton denim in heavy weights, made from very coarse yarns, has long been an important fabric for men's work clothes. Mediumweight denims, of finer yarns and often mercerized, are used for such garments as shirts and girls' dresses and suits.

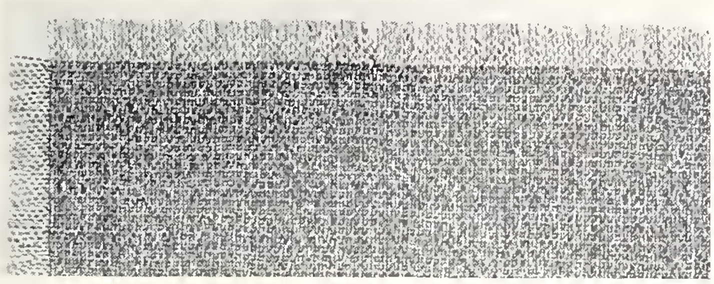
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FIGURE 48.—Wool crepe.

Dimity.—A plain-weave sheer cotton fabric with heavier lengthwise cords which help give it stiffness. Dimity usually wears out first along these cords. Used for children's and women's dresses and blouses.

Dotted swiss.—A cotton fabric in plain, open weave with dots woven in at intervals by means of a special attachment to the loom. The ends of the yarns forming the dots may be clipped on the underside or "hand tied." Dots with clipped ends sometimes come out with wear and laundering (see p. 16).

Faille, bengaline, ottoman.—These fabrics all have crosswise ribs and are similar in construction.

Faille has flat ribs (fig. 49). It may be made of silk, wool, or a manmade fiber. For a crepe faille, crepe yarns are used in one direction. Faille is used for dresses, suits, and blouses.

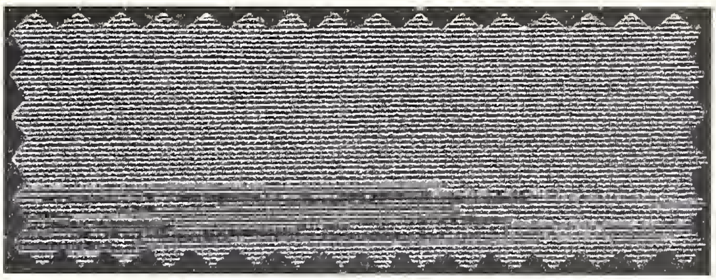
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FIGURE 49.—Faille.

Bengaline has heavier ribs than failles (fig. 50). In **ottoman** the ribs are heavier and rounder than in bengaline and are sometimes spaced farther apart. Bengaline and ottoman may be made of silk, rayon, acetate, or nylon, usually with ribs of cotton or rayon. They are used for dresses, suits, and coats.

In wear and cleaning, the warp yarns of these ribbed fabrics, particularly those made of some of the manmade fibers, are likely to slip and wear off, so that the filling or rib yarns show. The fabrics, especially in dark colors, tend to get shiny with wear and pressing. For satisfactory service from rayon failles and bengalines, which are likely to shrink in cleaning, buy fabrics that are labeled "preshrunk."

Flannel.—A twill- or plain-weave fabric usually made of wool, rayon, acetate, cotton, or blends of two or more fibers.

1. Worsted flannels have a fairly clear weave with a slight nap; some have a polished surface. Woolen flannels have a soft, napped surface which hides the weave. Wool flannels tailor easily and are used for men's and women's suits, coats, and shirts and for dresses and blouses for women and children. Wool is combined with cotton to make a washable flannel for infants' wear and for dresses and blouses.

2. Flannel of rayon or of rayon and acetate, usually washable, is used for men's suits and women's and children's suits and dresses. It is not so warm as wool flannel of similar construction,

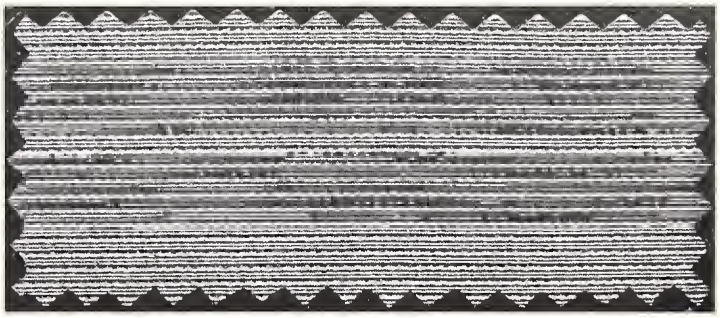
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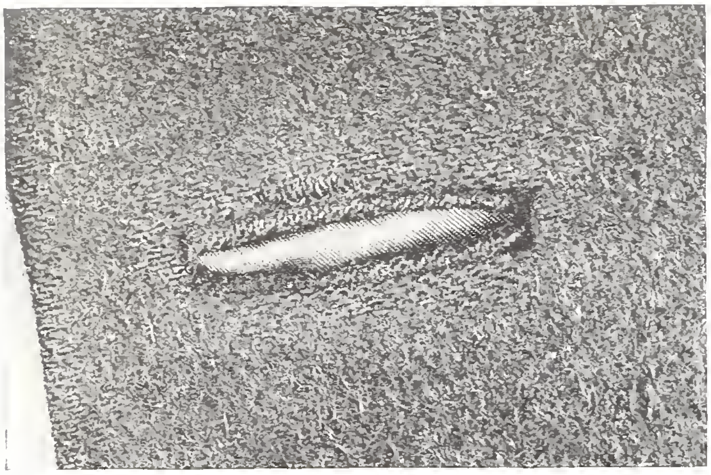
FIGURE 50.—Bengaline.



78422-B

FIGURE 51.—Wool fleece, showing wear around buttonhole.

so is good for between-seasons' wear. It usually requires a special finish to make it resistant to wrinkling.

3. Canton flannel is made of cotton, usually in a twill weave, and has a thick, fleecy nap on one side. It is used for interlinings. Outing flannel, also of cotton, is napped on both sides and is used for sleeping garments and the like.

Fleece, zibeline.—**Fleece** is a thickly napped fabric of twill weave or knitted construction, made of wool, manmade fiber, or one of the specialty fibers, such as cashmere or vicuna, or a blend of any of these. Wool fleeces and the heavier ones of manmade fibers are used chiefly for coats. Robes and sleeping garments are made from some of the lighter weight fleeces of manmade fibers.

The short fibers of all fleece coatings are likely to shed, and are sometimes objectionable when they show on garments of other colors. Fleeces are generally not hard wearing. The nap is likely to wear off in time, particularly on pocket, sleeve, and front edges (fig. 51).

Wool fleeces with a very long, hairy nap pressed flat to give a lustrous appearance are called **zibelines** (fig. 52). Some zibelines have a very soft and satiny luster and retain their original appearance well; others, made of coarser fibers, usually look shaggy after wear and cleaning.

Foulard.—See Surah.

Gabardine.—A twill-weave fabric of worsted, cotton, or manmade fibers. The twill is usually fine, close, and steep and shows only on the right side.

Good-quality worsted gabardine is usually lustrous and firm, yet rather soft. Extreme care in pressing is required to prevent it from becoming shiny. Because of the methods used in dyeing, the colors in wool gabardines occasionally are not fast to dry cleaning.

Gingham.—A plain-weave, yarn-dyed cotton. Different colored yarns are used to produce checks, stripes, or plaids, but ginghams are also made in plain colors or novelty effects. There are many qualities and weights, from heavy, coarse, unmercerized ginghams to the soft, lightweight, mercerized fabrics made of fine combed yarns and used for good-quality dresses and blouses. Good-quality gingham often has a wrinkle-resistant finish.

Homespun.—A plain- or twill-weave fabric usually made of rather thick, bulky woolen yarns to give a rough appearance. Generally a hard-wearing fabric that resists wrinkles and shine. Soft homespuns sometimes pill; the pills come off in cleaning.

Jersey.—A knitted fabric made of wool or cotton; or when made of one of the manmade fibers, usually called tricot. Used for dresses, blouses, and millinery and gives fairly good service (see pp. 14–15).

Jerseys are often finished crooked in the mill and may need to be straightened before being cut. Wool, silk, and cotton jerseys are easy to straighten; those of nylon or acetate are often very difficult.

Lawn.—A lightweight, plain-weave cotton made of fine yarns. Lawn usually has a crisp, starched finish and is used for dresses and blouses.

Longcloth.—A firm, plain-weave cotton with a soft, dull texture and rather close weave. It is heavier than lawn and nainsook and is often printed. Used for lingerie and dresses.

Madras.—A plain-weave, lightweight cotton fabric with small woven figures or stripes (see pp. 16–17). Usually mercerized. Used for dresses, blouses, and men's shirts.

Moire.—A plain-weave, firm-ribbed fabric of silk, rayon, acetate, or nylon with a flattened design produced by engraved rollers, heat, and

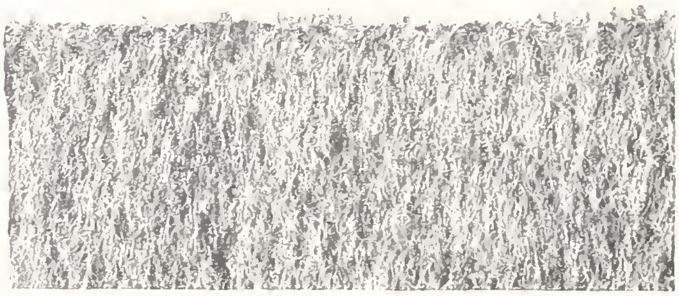


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FIGURE 52.—Zibeline.

pressure (see p. 18). The design is permanent on acetate or nylon, but not on silk or rayon.

Muslin.—A plain-weave, firm cotton fabric usually heavier than longcloth. It may be bleached or unbleached. Used for lingerie.

Nainsook.—A soft, plain-weave cotton with more luster than longcloth and heavier than batiste. Used for lingerie, blouses, and infants' and children's clothing.

Organdie.—A sheer, lightweight, plain-weave fabric of cotton, silk, or manmade fiber with a rather stiff, wiry feel. The yarns are fine, the weave fairly open. Some finishes applied to cotton organdies are fairly permanent; silk organdies, however, are likely to lose their finish in dry or wet cleaning.

To produce *crinkled organdie*, cotton organdie is given a plisse finish. In good-quality fabrics, the finish is fairly durable to wear and washing. The material is used for dresses, blouses, negligees.

As raw edges of organdies irritate the skin, all seams should be closed on garments of these fabrics.

Oxford cloth.—A plain-weave fabric in which two or more yarns are used as one in weaving. Good-quality oxford cloth is durable. It is used for men's soft shirts.

Percale.—A plain-weave cotton fabric. Good qualities are of rather fine yarns, firmly woven, with about the same number in the warp and filling. Poorer qualities are more loosely woven with coarser yarns and may contain considerable sizing (see p. 13). Percale comes in plain colors and prints and is used for dresses, shirts, and aprons.

Pique.—A plain-weave cotton with lengthwise or crosswise ribs or cords on the right side and rather long floats on the wrong side (fig. 53). Made also in a waffle-type weave. Fairly durable, but difficult to wash clean. Used for dresses, blouses, and suitings, and lingerie trim.

Plisse.—See Seersucker.

Pongee.—See Shantung.

Poplin.—A plain-weave fabric, usually of cotton, similar to broadcloth, but with heavier, crosswise ribs. Used for nurses' uniforms, men's shirts, children's clothes. Worsted poplin is a fabric used for coats and suits. It is durable but may get shiny with wear.

Satin, sateen.—Soft, lustrous fabrics in satin weave (see p. 12). Used for dresses, blouses, lingerie.

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Figure 53.—Pique (wrong and right side).

Crepe-back satins or satin crepes are satin-weave fabrics of silk or rayon made with high-twist yarns in one direction. Because this construction strengthens the fabrics, they will generally stand harder wear than smooth-backed satins.

Seersucker, plisse.—Crinkled fabrics made of cotton, rayon, nylon, Orlon, or combinations of these fibers. Both are used for dresses, play clothes, and lingerie. Seersucker is used also for warm-weather suits.

Seersucker has woven-in, crinkled, lengthwise stripes (fig. 54). To produce the puckered effect, groups of coarse yarns in the warp are held loosely in the loom during weaving and adjacent groups of fine yarns are held firm.

Plisse is a plain-weave fabric with crinkled stripes or other designs (fig. 55) produced by shrinking part of the material with caustic soda. Patterns made in this way are not so permanent as the woven pattern in seersucker, but the fabric is softer and lighter in weight.

Serge.—A twill-weave, worsted fabric with a hard finish. The twill is not so steep as that of

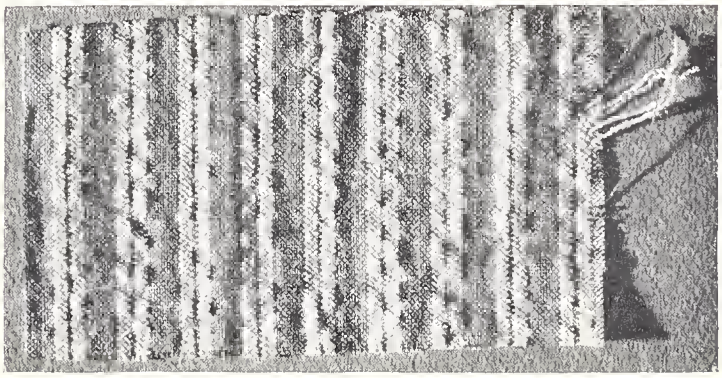

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Figure 54.—Seersucker.

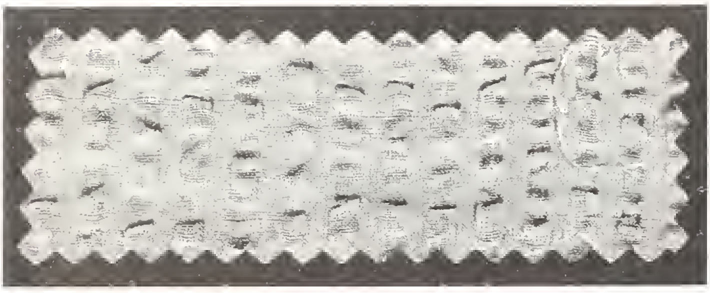

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FIGURE 55.—Plisse.

gabardine and it shows on both sides. The ribs may be fine and close together or they may be coarse; in poor qualities, the fabric feels flimsy. Good-quality serges are durable but show shine with wear, especially in navy blue or black.

Silk serge resembles surah in appearance but is usually heavier.

Shantung, pongee.—Plain-weave fabrics with lengthwise or crosswise yarns of uneven thickness that produce a slub effect.

Shantung, made originally of silk, comes also in cotton, rayon, acetate, and nylon. It is not a very hard-wearing fabric (see p. 11), but often a high-style material. Silk or rayon shantungs are likely to lose body in cleaning; so should be cleaned by a reliable cleaner who can apply a special finish to restore the body.

Silk **pongee,** made of wild silk, is similar to shantung but is lighter in weight and has fewer uneven yarns. Formerly a rather thin material, pongee is now made with a firmer, closer weave and is used for suits, summer coats, and dresses. It is usually in neutral color but available also in solid colors and prints. Pongee is made also of cotton and some of the manmade fibers.

Sharkskin.—A rather soft twill-weave suiting of worsted with both light and dark yarns in the warp and filling. Usually gives good service. A fabric made of acetate in a plain weave and used for lightweight suits is also called sharkskin.

Surah, foulard.—Soft, pliable, twill-weave fabrics of silk, rayon, acetate, or nylon (fig. 56). They are firmly woven; the twills may be close together or rather far apart. Surah is sometimes called tie silk. Foulard is lighter in weight than surah and has a more lustrous surface. Both fabrics are usually printed. They are used for dresses, robes, blouses, and ties.

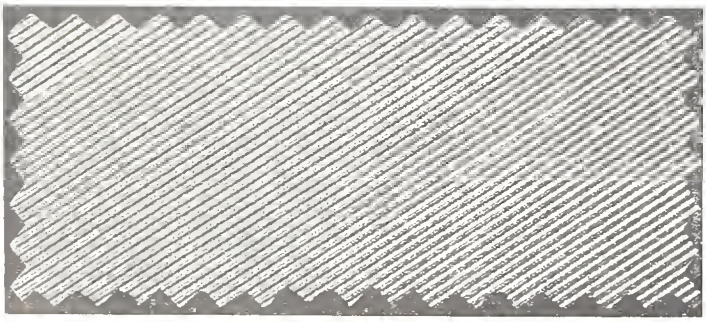

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FIGURE 56.—Surah.

Taffeta.—A firm, plain-weave fabric of silk, rayon, acetate, or nylon, usually with a fine, crosswise rib and a rather stiff finish. For good service the finish should be permanent. Silk taffetas are likely to crack if they are not pure silk (see p. 6). Rayon and loom-finished acetate taffetas may shrink badly in cleaning unless preshrunk. Acetate taffetas require special dyeing or finishing treatment to prevent gas fading. The "paper" taffetas are likely to lose their finish and shrink in cleaning.

Terry cloth.—A cotton fabric with loops on one or both sides. For best wear the background fabric should be firm and the loops close together. The material is warm and absorbent. It is used for robes and beachwear.

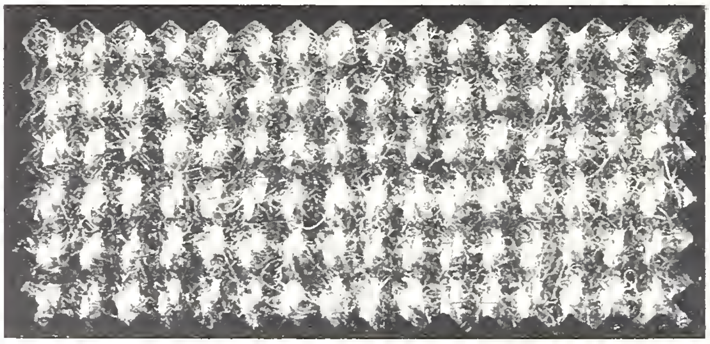

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FIGURE 57.—Wool tweed.

Tricot.—See Jersey.

Tweed.—Usually a twill-weave, woolen fabric, generally rather bulky but fairly pliable (fig. 57). It is most often made with yarns of two or more colors in a mottled effect or stripes or other patterns but it may be in solid color. Used for coats and suits.

Plain- or twill-weave novelty fabrics of various fibers—cotton, rayon, linen, silk—with a mottled, two-color effect are often called tweed. They are used for between-season clothing.

Velour.—A plain- or twill-weave fabric with a short, dense pile. It is usually made of wool. The material is rather fragile, particularly in soft, fine qualities as the pile tends to wear off. In dark colors velour is difficult to keep free of lint. Used for coats.

Velvet, velveteen.—Pile fabrics, similar in appearance and construction, with a plain- or twill-weave background and a short pile.

Velvet is made of silk, rayon, acetate, or nylon. The pile is formed by extra warp yarns and may be left upright or pressed flat in one direction. Velvet with a dense pile is a firm, heavy fabric that is used for coats and trim on coats. Dress-weight velvets are made with a rather scanty pile for better draping qualities.

Velveteen is a cotton fabric with the pile made of filling yarns. A warm fabric, it is used for coats, dresses, and suits for cold weather.

Voile.—A sheer, rather crisp cotton fabric with an open plain weave. Good qualities are made of fine yarns, twisted for extra strength, and often treated with a wrinkle-resistant finish. Cotton voile is used for summer dresses and blouses.

Voiles are also made of wool and silk. Wool voile is a sheer, smooth, wiry dress fabric of worsted yarn. Silk voile usually has a special finish to stiffen it somewhat.

Because voiles are loosely woven, seams require secure finishing to keep them from fraying.

Zibeline.—See Fleece.

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